

Final Environmental Assessment of Proposed Amendment to 4(d) Protective Regulations for Threatened Salmonid ESUs

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ABSTRACT

On November 15, 2004, NMFS published in the *Federal Register* a notice of the availability of a draft Environmental Assessment (EA) on the actions listed below. This document is the final EA, and reflects comments received on the draft. Comments on the draft EA are provided in Appendix 1 (see also “Draft EA Comments and Responses” section, beginning on page VIII).

The National Marine Fisheries Service (NMFS) has reviewed the status of 26 Evolutionarily Significant Units (ESUs) of salmon (chum, *Oncorhynchus keta*; coho, *O. kisutch*; sockeye, *O. nerka*; chinook, *O. tshawytscha*) and *O. mykiss* (which include anadromous steelhead and resident rainbow trout occurring in the same areas) previously listed as threatened and endangered under the Endangered Species Act (ESA), as well one candidate ESU. Since publication of the draft EA, NMFS has determined that 12 of the reviewed ESUs warrant listing as threatened species under the ESA. NMFS is extending the deadline for final listing determinations for the Oregon Coast coho ESU and nine *O. mykiss* ESUs proposed as threatened. It is likely that one or more of these ESUs may be listed as threatened at the end of the 6-month extension. To ensure that NMFS does not underestimate the impacts of the proposed action in this final EA, NMFS has evaluated the impacts of threatened determinations for the Oregon Coast coho ESU and nine *O. mykiss* ESUs, as proposed.

Section 9 of the ESA prohibits the “take” of species listed as endangered, and section 4(d) requires NMFS to adopt protective regulations that the agency deems necessary and advisable for the conservation of species listed as “threatened.” For threatened species, NMFS may prohibit any act that is prohibited under section 9 for endangered species. NMFS has determined for threatened salmonids that the section 9 take prohibitions can be applied with certain exceptions, or “limits,” and has adopted 4(d) rules that prohibit take except for specific programs or activities that minimize the risk of take or otherwise contribute to the species’ conservation. Although listing determinations and the promulgation of protective regulations are non-discretionary actions not subject to the National Environmental Policy Act (NEPA), NMFS does have discretion in determining those specific protective regulations and limits that are necessary and advisable for the conservation of threatened ESUs. Accordingly, the promulgation of 4(d) protective regulations is subject to the requirements of NEPA.

In conjunction with the proposed listing determinations, NMFS proposes to revise and simplify existing 4(d) protective regulations for threatened salmon and *O. mykiss* ESUs. NMFS proposes to revise the protective regulations so that all threatened ESUs are subject to the same limits. Additionally, NMFS proposes to revise the current protective regulations so that the section 9

take prohibitions do not apply to adipose-fin-clipped hatchery fish and resident *O. mykiss* (rainbow trout). NMFS has determined that this latter amendment will minimize the regulatory burden of managing threatened listings, while retaining the necessary and advisable protections to provide for the conservation of threatened salmon and *O. mykiss* ESUs.

This EA describes two alternative approaches, including a proposed action that NMFS could take in promulgating protective regulations for salmonids listed as threatened under the ESA. This EA assesses the environmental impacts of the alternative actions relative to baseline conditions established by existing laws and regulations in the context of the proposed threatened listings. The results of this analysis indicate that no significant impacts on the human environment are expected to result from implementation of the proposed action.

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 - B. LIST OF ARTIFICIAL PROPAGATION PROGRAMS INCLUDED IN EVOLUTIONARILY SIGNIFICANT UNITS OF WEST COAST SALMON AND *ONCORHYNCHUS MYKISS*
 - C. DESCRIPTION OF THE PROPOSED CLARIFYING CHANGES TO THE 4(D) PROTECTIVE REGULATIONS FOR THREATENED SALMONIDS

ACRONYMS AND ABBREVIATIONS

CDFG	California Department of Fish and Game
COE	United States Army Corps of Engineers
CVP	Central Valley Project
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FFR	Forest and Fish Report
FMEP	Fishery Management and Evaluation Plan
FR	Federal Register
HGMP	Hatchery and Genetic Management Plan
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NFH	National Fish Hatchery
NMFS	National Marine Fisheries Service
<i>O.</i>	<i>Oncorhynchus</i>
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
USDA	United States Department of Agriculture

DRAFT EA COMMENTS AND RESPONSES

Pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969, NMFS prepared an EA analyzing the proposed amendments to the 4(d) protective regulations for threatened salmonids (69 FR 33102; June 14, 2004). As part of the proposed listing determinations and the proposed amendments to the 4(d) protective regulations, NMFS announced that a draft of the EA was available for public review (69 FR at 33172; June 14, 2004). The comment period for the proposed listing determinations and the proposed 4(d) amendments was extended three times (in *Federal Register* notices published on August 31, 2004 (69 FR 53093), September 9, 2004 (69 FR 54637), and October 8, 2004 (69 FR 61347)), through November 12, 2004, for a total of 151 days. Additionally, on November 15, 2004, NMFS published notice of availability in the *Federal Register* specifically soliciting comment on the draft EA for an additional 30 days (69 FR 65582).

NMFS received a total of seven comments regarding the draft EA for the proposed amendments to the 4(d) protective regulations from: the Environmental Protection Agency; the U.S. Forest Service, Pacific Northwest Region; the Bureau of Land Management; the Washington State Department of Transportation and King County (Washington); the Pacific Rivers Council; and the Modesto Irrigation District. Appendix 1 includes copies of the comments and a summary of, and response to, the specific issues raised by the commenters.

Any changes in this final document relative to the draft EA are informed by the comments received on the draft EA (Appendix 1), changes made by NMFS between the proposed and final listing determinations for 16 ESUs, and the potential listing of 10 ESUs (proposed for threatened status) for which final listing determinations are being extended. The majority of changes denoted in this document reflect changes in the final listing determinations for 16 salmon ESUs: (1) the final determination for the Sacramento River winter-run Chinook ESU is to list it as “endangered” (rather than “threatened,” as proposed); (2) the inclusion of one additional hatchery program as part of the Central Valley spring-run Chinook ESU (Appendix B); (3) the inclusion of four additional hatchery programs as part of the Puget Sound Chinook ESU (Appendix B); and (4) the inclusion of four additional hatchery programs as part of the Lower Columbia River coho ESU (Appendix B). The final listing determinations for the Oregon Coast coho ESU and nine *O. mykiss* ESUs proposed as “threatened” are being extended for 6-months under ESA section 4(b)(6)(B)(i). Following the 6-month extension, and after this EA is finalized, it is likely that one or more of the subject ESUs will be listed as threatened. To ensure

that NFMS does not underestimate the impacts of the proposed action in this final EA NMFS has evaluated the impacts final threatened determinations for these 10 ESUs, as proposed. This final EA does not prejudge the outcome of the final listing determinations; rather it fully evaluates the potential impacts of the proposed action. The text in this final EA has been changed to refer to “final” determinations rather than the June 2004 “proposed” determinations.

1. PURPOSE OF AND NEED FOR ACTION

1.1 DESCRIPTION OF PURPOSE AND NEED

The purposes of the proposed action are as follows:

- Provide for the conservation of one previously endangered ESU whose status is being changed to threatened, and one ESU previously identified as a candidate species that is being listed as threatened, using the flexibility of section 4(d) to prohibit take only to the extent needed for conservation.
- Standardize and simplify the 4(d) protections for all threatened ESUs, in particular, applying the flexibility of section 4(d) to all threatened ESUs to prohibit take only to the extent needed for conservation.
- Provide protection of hatchery fish and resident rainbow trout (*O. mykiss*) that are listed as threatened only to the extent required for the conservation of the listed ESUs.

The need for the proposed action is discussed in the following paragraphs.

Without revision to the current 4(d) rule, two ESUs would not be protected by any prohibitions on take (lower Columbia River Coho, which has not been previously listed, and Upper Columbia River *O. mykiss*, which was previously listed as endangered and is proposed for listing as threatened). NMFS has concluded that state and local regulations, voluntary efforts, and limitations on federal actions under ESA and other federal laws are not adequate to provide for conservation of these ESUs. The previous ESA listings of salmon and *O. mykiss* ESUs have provided the incentive for numerous protective measures and regulations. While many threats to salmon and *O. mykiss* are being rectified (e.g., over-harvest, fish passage above artificial barriers), other threats have been reduced but not eliminated. In developing the proposed listing determinations for the subject ESUs, NMFS evaluated existing protections for West Coast salmonids to determine if the cumulative effect of these protections provides for the conservation of these ESUs (69 FR 33102; June 14, 2004). NMFS has determined that existing protections do not as yet individually or collectively provide sufficient certainty of implementation and effectiveness to substantially reduce the extinction risk for the ESUs under review. NMFS, therefore, deems it necessary and advisable to adopt regulations prohibiting take of these ESUs, except in certain specified circumstances.

Under the current 4(d) protective regulations for threatened ESUs, there are exceptions to, or limits on, the take prohibitions for some ESUs, but not for others. Even for ESUs with limits on the take prohibitions, the limits are not uniformly applied among ESUs. This difference in treatment is confusing for the public and is not reflective, supportive, or encouraging of the conservation needs of the various ESUs.

NMFS is finalizing listing determinations that include hatchery fish that were not previously listed, and NMFS has proposed listing resident *O. mykiss* (rainbow trout) that were not previously listed. Without a revision to the current 4(d) protective regulations, take of all listed hatchery fish and resident *O. mykiss* would be prohibited upon listing, except in certain circumstances. NMFS has determined that it is neither necessary nor advisable to protect all hatchery fish and resident rainbow trout (*O. mykiss*) to the same extent as naturally spawned and anadromous fish to ensure conservation of the listed ESUs.

1.2 BACKGROUND OF REGULATORY AUTHORITIES

Section 4(a) of the Endangered Species Act (ESA)) requires the National Marine Fisheries Service (NMFS) to list species it determines are threatened or endangered species after conducting a review of their status and evaluating efforts being made to protect the species. The ESA defines “species” to include subspecies and any “distinct population segment” of vertebrate fish or wildlife that interbreeds when mature. For Pacific salmon and *O. mykiss*, NMFS has adopted a policy defining distinct population segments as “evolutionarily significant units” (56 FR 58612, November 20, 1991), or ESUs (*O. mykiss* ESUs include both anadromous steelhead and resident rainbow trout occurring in the same area). A population or group of populations qualifies as an ESU if it is reproductively isolated and represents an important component of the evolutionary legacy of the species.

For species listed as endangered, section 9(a) of the ESA prohibits activities that result in take. These prohibitions make it illegal for any person subject to the jurisdiction of the United States to take (take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect, or to attempt any of these activities), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any endangered species.

For species listed as threatened, section 4(d) of the ESA requires the Secretary of Commerce to issue such regulations as are deemed necessary and advisable to provide for the conservation of the species. The 4(d) protective regulations may prohibit, with respect to threatened species, some or all of the acts that section 9(a) of the ESA prohibits with respect to endangered species. Both the section 9(a) prohibitions and section 4(d) regulations apply to all individuals, organizations, and agencies subject to United States jurisdiction. Previously, NMFS has adopted

section 4(d) rules that apply all of the same prohibitions to threatened species as apply to endangered species. However, NMFS has flexibility under section 4(d) to tailor protective regulations based on the contents of available conservation measures.

The ESA allows NMFS to permit an otherwise prohibited take, under certain circumstances. For federal agency actions, section 7 of the ESA requires consultation with NMFS if the activity may affect a listed ESU or its critical habitat (section 7(a)(2)). As a result of the consultation, NMFS may issue an “incidental take statement,” which sets forth the level of take allowed. For all other actions contemplated by non-federal actors, section 10 of the ESA gives NMFS authority to issue a “direct take” permit for scientific research or enhancement purposes (section 10(a)(1)(A)) or an “incidental take” permit (section 10(a)(1)(B)), if certain conditions are met. Beginning in 1997, NMFS began to use its authority under section 4(d) to tailor specific protective regulations to limit application of the take prohibitions for a range of activities it had determined were conducted consistent with the conservation of the listed species. NMFS created a mechanism whereby parties could obtain an approval certifying that their proposed activity fell within one of the take limits and, therefore, if their activity did result in an incidental take of listed fish, it was not a prohibited take.

The take limits themselves are not prescriptive regulations. The fact that an activity is not conducted within the specified criteria for a take limit does not necessarily mean that the activity violates the ESA or the proposed protective regulations. Many activities do not affect the threatened ESUs covered by NMFS’ 4(d) protective regulations, and, therefore, need not be conducted within a given limit to avoid take violations.

1.3 REGULATORY HISTORY

NMFS has adopted 4(d) protective regulations that extend the section 9(a) take prohibitions to all threatened salmon and steelhead. In certain circumstances, exceptions (or limits) provide that take is not prohibited if it is the result of an activity that otherwise adequately provides for the conservation of the species. These 4(d) regulations were adopted at various times, in response to a number of listing determinations, and they contain different limits to the take prohibitions for different ESUs. Currently, there are 29 limits to the take prohibitions for threatened salmon and steelhead species. Comprehensive descriptions of each 4(d) limit are contained in *A Citizen’s Guide to the 4(d) Rule*. This document is available in previously published Federal Register (FR) documents (62 FR 38479, July 18, 1997; 65 FR 42422, July 10, 2000; 65 FR 42485, July 10, 2000; 67 FR 1116, January 9, 2002) and on the Internet at the following address: <http://www.nwr.noaa.gov/1salmon/salmesa/final4d.htm>.

The first six of the 29 limits to be promulgated (50 Code of Federal Regulations §223.204(b)(1) through (b)(6)) were published as an interim rule for the Southern Oregon/Northern California Coast Coho ESU in 1997 (62 FR 38479, July 18, 1997). These six limits allow for the take of coho salmon in Oregon and California, under certain circumstances, if the take is part of approved fisheries management plans, part of an approved hatchery program, part of approved fisheries research and monitoring activities, or part of approved habitat restoration activities.

In 2000, NMFS promulgated a total of 14 limits affecting 14 ESUs in California, Oregon, and Washington (65 FR 42422, July 10, 2000; §223.203(b)(1) through (b)(13); 65 FR 42485, July 10, 2000; 50 CFR §223.209) (see Appendix A for a summary of these 14 limits). These limits include (b)(1) activities conducted in accordance with ESA section 10 incidental take authorization; (b)(2) scientific or enhancement activities with pending applications at the time of rulemaking; (b)(3) emergency actions related to injured, stranded, or dead salmonids; (b)(4) fishery management activities; (b)(5) hatchery and genetic management programs; (b)(6) activities in compliance with joint Tribal/state plans developed within *United States v. Washington* or *United States v. Oregon*; (b)(7) scientific research activities permitted or conducted by the states; (b)(8) state, local, and private habitat restoration activities; (b)(9) properly screened water diversion devices; (b)(10) routine road maintenance activities; (b)(11) certain park pest management activities in Portland, Oregon; (b)(12) certain municipal, residential, commercial, and industrial development and redevelopment activities; (b)(13) forest management activities on state and private lands within the state of Washington; and activities undertaken consistent with an approved tribal resource management plan. The Southern Oregon/Northern California Coasts Coho ESU was included under 3 of these 14 limits (limits §223.203(b)(1), (b)(3), and §223.209 above). The limits published in 2000 that addressed fishery and harvest management, scientific research, and habitat restoration activities did not supersede the previous six limits of the 1997 interim rule, despite addressing the same types of activities. Also in 2000, NMFS issued a rule describing a mechanism for exempting activities undertaken consistent with an approved Tribal Resource Management Plan (65 FR 42485, July 10, 2000; §223.209); this rule applies to all Pacific salmon and steelhead ESUs currently listed as threatened.

In 2002, NMFS added nine additional limits (67 FR 1116, January 9, 2002; §223.203(b)(14) through (b)(22)) addressing four salmonid ESUs in California: the Central Valley Spring-run Chinook, California Coastal chinook, Central California Coast Coho, and Northern California *O. mykiss* ESUs. These limits are essentially identical to limits previously promulgated in 2000 (see Appendix A). These additional nine limits similarly address emergency actions, fishery management activities, artificial propagation programs, scientific research, habitat restoration activities, properly screened water diversions, routine road maintenance activities, and

development and redevelopment activities. Rather than including the four California ESUs under the limits promulgated in 2000, NMFS treated these ESUs under separate limits to ensure that they received timely and appropriate protections under the ESA. See Table C-1 in Appendix C for a summary of applicable 4(d) rules and limits for the subject ESUs.

1.4 DESCRIPTION OF PROPOSED ACTION

NMFS has completed a comprehensive status review of, and is issuing final listing determinations for 15 previously listed salmon ESUs, as well one candidate ESU. NMFS has determined that 12 of the ESUs reviewed warrant listing as threatened species, presenting implications for the 4(d) protective regulations presently in place. The final listing determinations for the Oregon Coast coho ESU and 10 *O. mykiss* ESUs (nine of which were proposed as “threatened”) are being extended for 6-months under ESA section 4(b)(6)(B)(i). Following the 6-month extension, and after this EA is finalized, it is likely that one or more of the subject ESUs may be listed as threatened. To ensure that NMFS does not underestimate the impacts of the proposed action in this final EA NMFS has evaluated the impacts of threatened determinations for the Oregon Coast coho ESU and nine *O. mykiss* ESUs, as proposed.

The recent status review and listing determinations are in response to the September 2001 District Court ruling in *Alsea Valley Alliance v. Evans* (161 F. Supp. 2d 1154, D. Ore. 2001; Alsea ruling). The *Alsea* ruling set aside NMFS’ 1998 ESA listing of Oregon Coast coho salmon (63 FR 42587; August 10, 1998). The Court ruled that the ESA does not allow NMFS to list a subset of an ESU, and that NMFS had improperly excluded from the listing hatchery fish it found were part of the ESU. Although the Court’s ruling affected only one ESU, the interpretive issue raised by the ruling called into question nearly all of NMFS’ Pacific salmonid listing determinations. Following the District Court’s ruling, NMFS received several petitions addressing 17 listed salmonid ESUs, including five steelhead ESUs. These petitions cited the *Alsea* ruling and focused on NMFS’ past practice of not listing all ESU hatchery fish. Various litigants have also challenged the failure to list resident populations included in threatened and endangered steelhead ESUs. In *Environmental Defense Center et al. v. Evans et al.* (SACV-00-1212-AHS (EEA)), the plaintiffs argue that NMFS failed to include resident populations in the endangered listing of the Southern California steelhead ESU (62 FR 43937; August 18, 1997). In *Modesto Irrigation District et al. v. Evans et al.* (CIV-F-02-6553 OWW DLB (E.D.Cal)), the plaintiffs seek to invalidate NMFS’ 1998 threatened listing of the Central Valley California steelhead ESU (63 FR 13347; March 19, 1998) for failing to list hatchery and resident populations identified as part of the ESU. To be compliant with the *Alsea* ruling, all populations or stocks (natural, hatchery, resident, etc.) included in an ESU must be listed if it is determined that the ESU is threatened or endangered under the ESA. As a result, the final listing

determinations include previously unlisted hatchery fish, and the proposed *O. mykiss* listings include previously unlisted resident fish.

As part of the final listing determinations, NMFS is amending the 4(d) rule to improve the clarity of the protective regulations and to minimize the regulatory burden of managing ESA listings while retaining the necessary and advisable protections to provide for the conservation of threatened salmon and *O. mykiss* ESUs. NMFS has proposed aligning the 4(d) regulations by making the following clarifying changes: (1) for one ESU currently listed as endangered but being proposed for threatened status (the Upper Columbia River *O. mykiss* ESU), NMFS proposes to apply the 4(d) protections and 14 limits promulgated in 2000; (2) for the ESU being newly listed as threatened (Lower Columbia Coho), NMFS proposes to apply the 4(d) protections and 14 limits promulgated in 2000; (3) NMFS proposes to apply the same set of limits to all threatened ESUs by bringing the Snake River fall-run chinook, Snake River spring/summer-run chinook, Southern Oregon/Northern California Coast Coho, Central Valley Spring-run chinook, California Coastal chinook, Central California Coast Coho, and Northern California *O. mykiss* ESUs under the 14 limits promulgated in 2000; (4) NMFS proposes to amend an expired limit (§223.203(b)(2)) providing a temporary exemption for scientific research and enhancement activities with pending applications; (5) NMFS proposes to move the description of the limit for Tribal Resource Management Plans (from §223.209 §223.204) so that the text would appear next to the 13 limits in the CFR (§223.203), improving the clarity of the 4(d) regulations. Additionally, NMFS proposes to revise the current 4(d) protective regulations so that take is not prohibited for adipose-fin-clipped hatchery fish and resident *O. mykiss* (rainbow trout).

NMFS is making two separate actions: (1) updating the ESU definitions and ESA listing status of 27 ESUs; and (2) amending the 4(d) protective regulations for the ESUs determined to warrant listing as threatened. The listing action is non-discretionary and is not subject to the requirements of the National Environmental Policy Act (NEPA). The effects of the changes in listing status are therefore not discussed in this EA. In contrast, while the ESA section 4(d) requirement to adopt protective regulations is also mandatory, the Secretary does have discretion in the specific regulations he deems necessary and advisable to provide for the conservation of threatened species. The Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a) (16 U.S.C. 1533(d)). Accordingly, the promulgation of 4(d) protective regulations is subject to the requirements of NEPA. The baseline for the analysis in this EA is the regulatory landscape that would exist once the (non-discretionary) listing determinations (final and proposed) take effect.

The no action alternative (i.e., no changes being made to the existing 4(d) protective regulations) would: (1) maintain existing coverage of 4(d) protective regulations for those ESUs previously listed as threatened; (2) result in a lack of protective regulations for one ESUs previously listed as endangered but proposed for threatened status, and one ESU being newly listed as threatened; and (3) apply protective regulations to newly listed hatchery fish and resident *O. mykiss* in ESUs currently subject to a 4(d) rule. In contrast, the effect of the proposed action alternative (i.e., discretionary amendments being made to the 4(d) protective regulations) would be to: (1) maintain existing coverage of 4(d) protective regulations for those ESUs previously listed as threatened; (2) apply 4(d) protective regulations to one ESU previously listed as endangered, and one ESU being newly listed as threatened; and (3) not apply 4(d) protective regulations for newly listed hatchery fish and resident *O. mykiss*. Tables 1-1 and 1-2 illustrate the changes that would result from the two alternatives relative to the baseline that would exist after the non-discretionary listing action takes effect.

Table 1-1. Overview of the two alternative actions for 4(d) protective regulations. The protections for hatchery and resident fish within Evolutionarily Significant Units (ESUs) of West Coast salmon (*Oncorhynchus* spp.) and *O. mykiss* are described for each of the two alternatives relative to the baseline of the final salmon and proposed *O. mykiss* threatened listings and existing 4(d) protective regulations.

Description of ESU Component(s)	Previous ESA Status	Baseline		No Action Alternative	Proposed Action Alternative
		<i>Baseline includes the final salmon and proposed <i>O. mykiss</i> threatened listings and existing 4(d) protective regulations</i>		<i>Proposed (non-discretionary) listings in place; No amendments to current 4(d) rules</i>	<i>Proposed (non-discretionary) listings in place; Amended 4(d) protective regulations</i>
		Current Take Prohibitions and Protective Regulations*	ESA Status (<i>non-discretionary listing action</i>)	Applicable 4(d) Protective Regulations	Applicable 4(d) Protective Regulations
All ESUs proposed for threatened status	<ul style="list-style-type: none"> 1 previously endangered ESU, 19 previously threatened ESUs, and 1 unlisted ESU 	<ul style="list-style-type: none"> Various take prohibitions and 4(d) limits 	<ul style="list-style-type: none"> All ESUs Threatened 	<ul style="list-style-type: none"> ESUs subject to a variety of 4(d) limits; some unprotected 	<ul style="list-style-type: none"> All ESUs subject to the same 4(d) rule

Natural- and hatchery-origin fish in currently listed ESUs	<ul style="list-style-type: none"> • All naturally spawned fish listed • Only a few hatchery stocks in ESUs included in listings 	<ul style="list-style-type: none"> • Take prohibited of all naturally spawned fish in listed ESUs • Take not prohibited for almost all hatchery fish in listed ESUs. Take prohibited for those hatchery stocks included in listings only. 	<ul style="list-style-type: none"> • All naturally spawned fish listed • All hatchery stocks in ESUs included in listings (~ 166 hatchery programs) 	<ul style="list-style-type: none"> • Take prohibited of all naturally spawned fish in threatened ESUs • Take prohibited of all hatchery fish in threatened ESUs (~166 hatchery programs) 	<ul style="list-style-type: none"> • Take prohibited of all naturally spawned fish in threatened ESUs • Take not prohibited of hatchery fish in threatened ESUs, unless adipose fin is intact.
Anadromous and resident fish in <i>O. mykiss</i> ESUs **	<ul style="list-style-type: none"> • All anadromous <i>O. mykiss</i> listed • No resident <i>O. mykiss</i> listed 	<ul style="list-style-type: none"> • Take prohibited of all anadromous <i>O. mykiss</i> • Take not prohibited of resident <i>O. mykiss</i> in listed ESUs 	<ul style="list-style-type: none"> • All anadromous <i>O. mykiss</i> listed • All co-occurring resident <i>O. mykiss</i> listed 	<ul style="list-style-type: none"> • Take prohibited of all anadromous <i>O. mykiss</i> • Take prohibited of all resident <i>O. mykiss</i> in listed ESUs 	<ul style="list-style-type: none"> • Take prohibited of all anadromous <i>O. mykiss</i> • Take not prohibited of resident <i>O. mykiss</i> in listed ESUs
<p>* For species listed as endangered, take is prohibited under section 9(a) of the Endangered Species Act (ESA). Take of species listed as threatened is protected by regulations promulgated under section 4(d) of the ESA. 4(d) protective regulations do not apply to endangered species.</p> <p>** <i>O. mykiss</i> is the scientific name for anadromous steelhead and resident rainbow trout. Populations of steelhead and co-occurring rainbow trout are included in the same <i>O. mykiss</i> ESU.</p>					

Table 1-2. Summary of the two alternative actions for 4(d) protective regulations, relative to the established baseline, for each of the subject 21 Evolutionarily Significant Units of West Coast salmon (*Oncorhynchus* spp.) and *O. mykiss*. The first two ESUs listed in the table below are those for which the relative difference in impact between the two alternative actions is most pronounced. The Oregon Coast coho ESU and the nine *O. mykiss* ESUs (proposed as threatened) are included in this table, although their final listing determinations are being extended.

		Baseline		No Action Alternative	Proposed Action Alternative
Evolutionarily Significant Unit (ESU)	Current ESA Status	Baseline includes the finalized salmon and proposed <i>O. mykiss</i> threatened listings and existing 4(d) protective regulations		Finalized salmon and proposed <i>O. mykiss</i> (non-discretionary) listings in place; No amendments to current 4(d) rules	Finalized salmon and proposed <i>O. mykiss</i> (non-discretionary) listings in place; Amended 4(d) protective regulations
		ESA Status (non-discretionary listing action)	Current Take Prohibitions and Protective Regulations*	Applicable 4(d) Protective Regulations	Applicable 4(d) Protective Regulations
Upper Columbia River <i>O. mykiss</i> ESU *	<i>Endangered</i>	Threatened	Sec. 9(a)	None	Amended 4(d) rule with limits
Lower Columbia River coho ESU	<i>Candidate</i>	Threatened	None	None	Amended 4(d) rule with limits
Ozette Lake sockeye ESU	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
Central Valley spring-run chinook ESU	<i>Threatened</i>	Threatened	2002 4(d) rule with limits	2002 4(d) rule with limits	Amended 4(d) rule with limits
California Coastal chinook ESU	<i>Threatened</i>	Threatened	2002 4(d) rule	2002 4(d) rule	Amended 4(d) rule

			with limits	with limits	with limits
Upper Willamette River chinook ESU	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
Lower Columbia River chinook ESU	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
Puget Sound chinook ESU	<i>Threatened</i>	Threatened	2000 4(d) rule; with limits	2000 4(d) rule; with limits	Amended 4(d) rule with limits
Snake River fall-run chinook ESU	<i>Threatened</i>	Threatened	1992 4(d) rule	1992 4(d) rule	Amended 4(d) rule with limits
Snake River spring/summer-run chinook ESU	<i>Threatened</i>	Threatened	1992 4(d) rule	1992 4(d) rule	Amended 4(d) rule with limits
Southern Oregon/Northern California Coast coho ESU	<i>Threatened</i>	Threatened	1997 interim 4(d) rule with limits	1997 interim 4(d) rule with limits	Amended 4(d) rule with limits
Oregon Coast coho ESU *	<i>Remanded to NMFS</i> ⁺	Threatened	2000 4(d) rule with limits ⁺	2000 4(d) rule with limits	Amended 4(d) rule with limits
Columbia River chum ESU	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
Hood Canal summer-run chum ESU	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
South-Central California Coast <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2002 4(d) rule with limits	2002 4(d) rule with limits	Amended 4(d) rule, with limits
Central California Coast <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2002 4(d) rule with limits	2002 4(d) rule with limits	Amended 4(d) rule with limits
California Central Valley <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2002 4(d) rule with limits	2002 4(d) rule with limits	Amended 4(d) rule with limits
Northern California <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2002 4(d) rule with limits	2002 4(d) rule with limits	Amended 4(d) rule with limits
Upper Willamette River <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
Lower Columbia River <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits

Middle Columbia River <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
Snake River Basin <i>O mykiss</i> ESU *	<i>Threatened</i>	Threatened	2000 4(d) rule with limits	2000 4(d) rule with limits	Amended 4(d) rule with limits
<p>1992 4(d) rule: 57 FR 14653; April 22, 1992 1997 interim 4(d) rule: 62 FR 38479, July 18, 1997 2000 4(d) rule: 65 FR 42422, July 10, 2000; 65 FR 42485, July 10, 2000 2002 4(d) rule: 67 FR 1116, January 9, 2002</p> <hr/> <p>+ The Court in <i>Alsea Valley Alliance v. Evans</i> remanded to NMFS the 1998 threatened listing determination for the Oregon Coast coho ESU. Presently, ESA protections for the Oregon Coast coho ESU are not enforceable, although technically they remain in place. *For species listed as endangered, take is prohibited under section 9(a) of the Endangered Species Act (ESA). Take of species listed as threatened is protected by regulations promulgated under section 4(d) of the ESA. 4(d) protective regulations do not apply to endangered species. * The final listing determinations for these 10 ESUs proposed as threatened, are being extended under ESA section 4(b)(6(B)(i)</p>					

1.5 ACTION AREA—WASHINGTON, IDAHO, OREGON, CALIFORNIA

The threatened (and proposed threatened) ESUs that NMFS is evaluating in this EA are in the states of Washington, Idaho, Oregon, and California. Figures 1-1 through 1-4 show area maps, by species, for each of the subject ESUs.

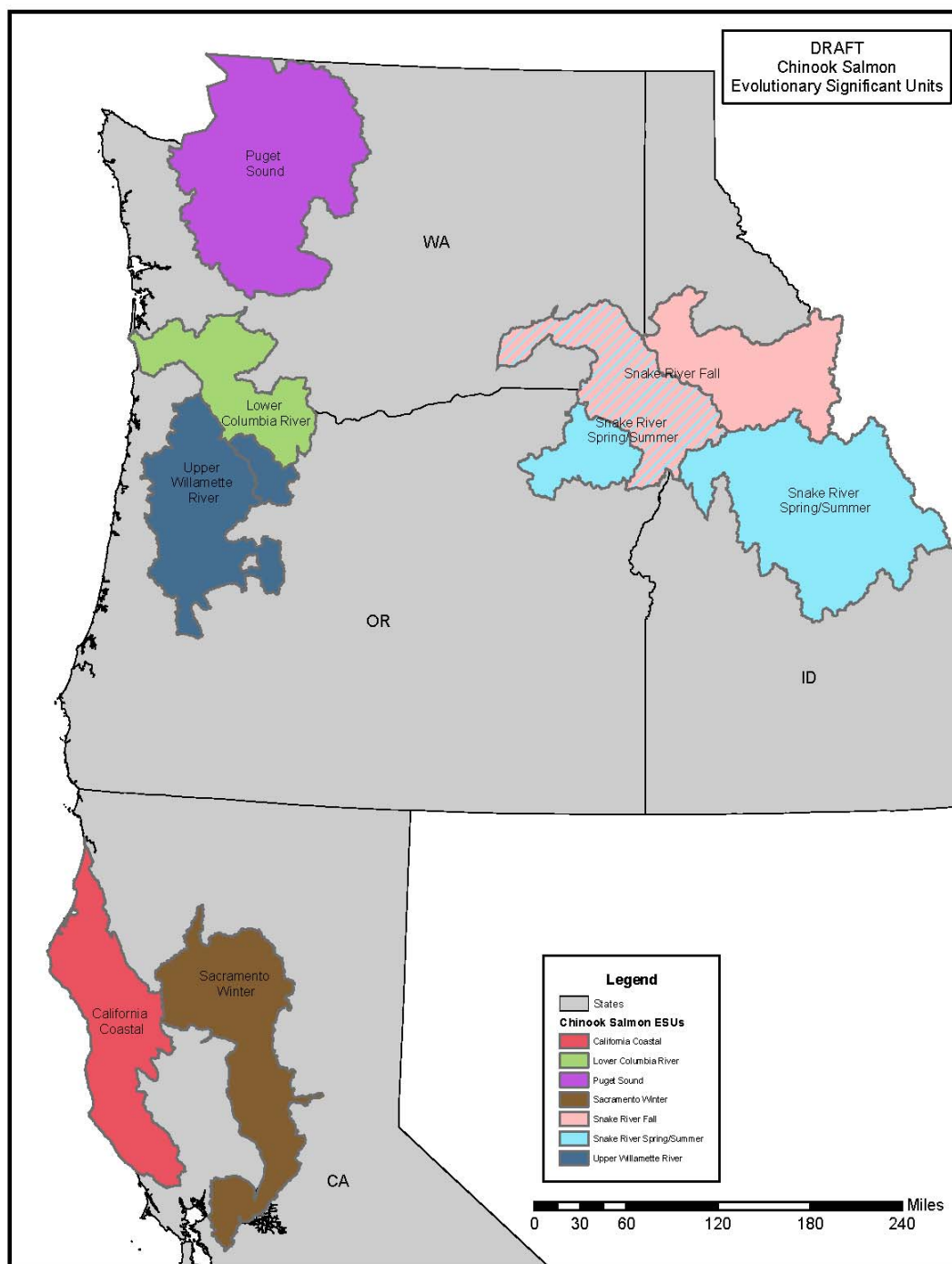


Figure 1-1. Evolutionarily Significant Units (ESUs) of chinook salmon (*Oncorhynchus tshawytscha*) proposed for "threatened" status under the Endangered Species Act. Note: the final listing determination for the Sacramento River winter-run Chinook ESU is "endangered."

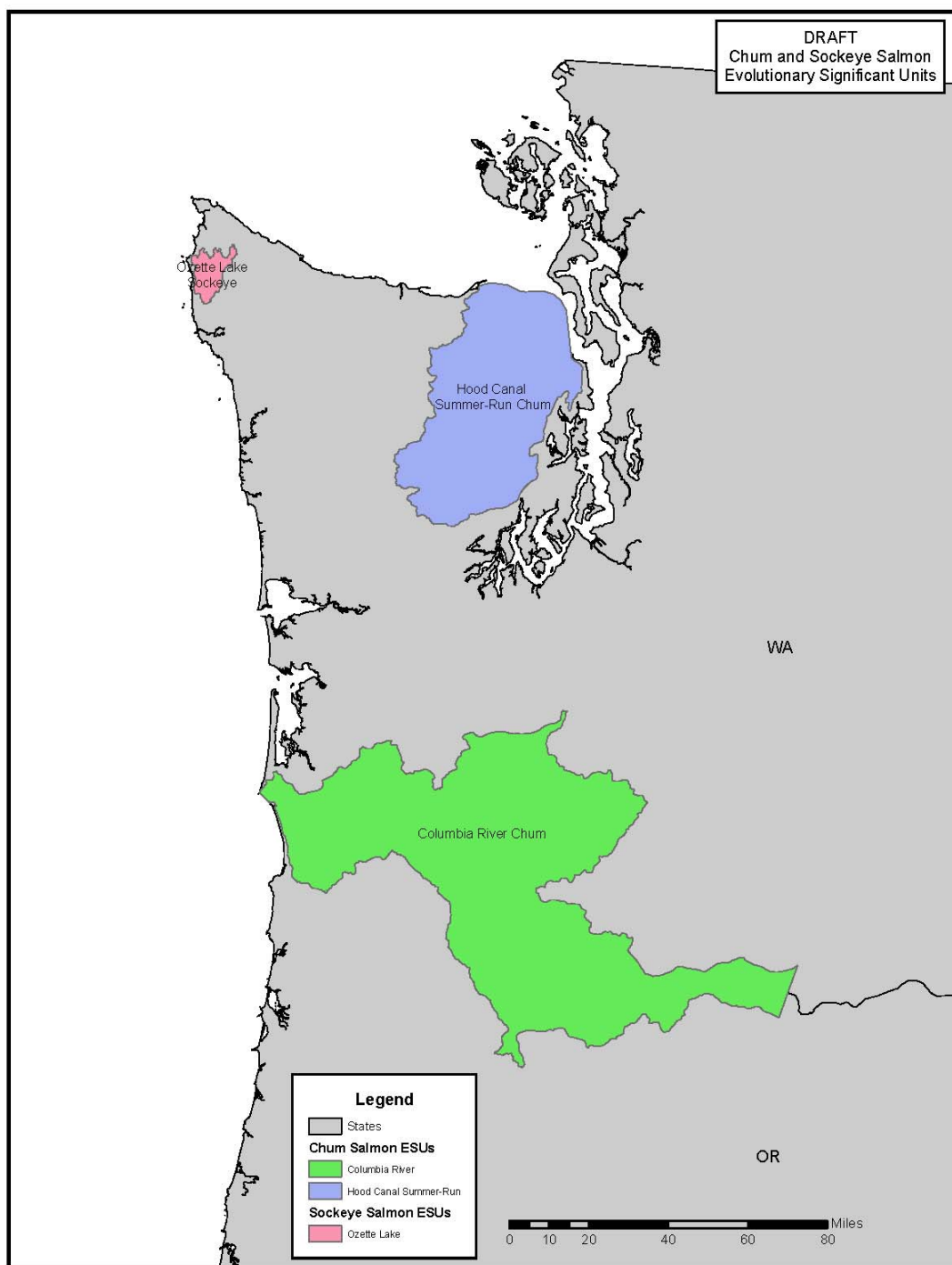
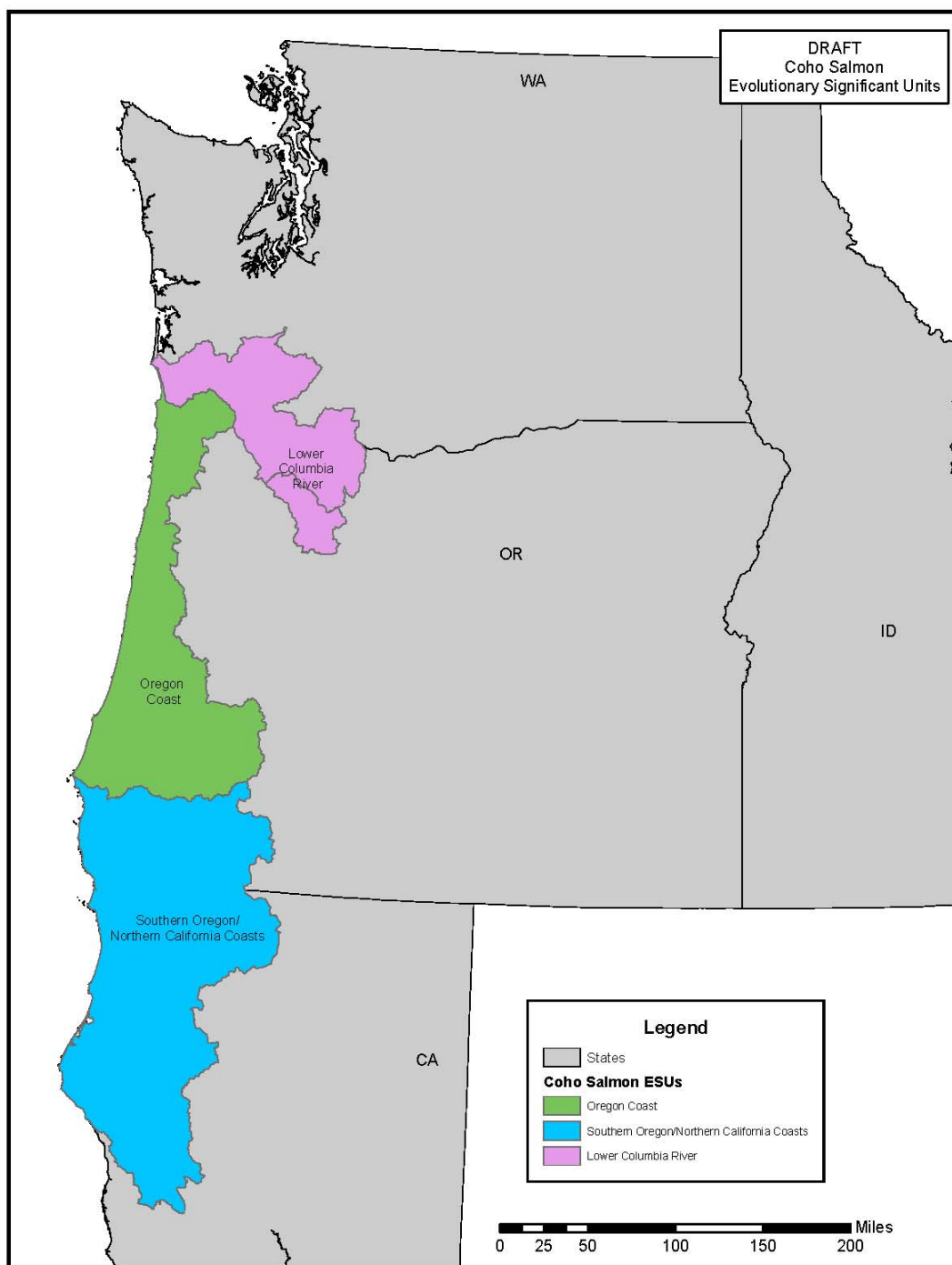


Figure 1-2. Evolutionarily Significant Units (ESUs) of chum (*Oncorhynchus keta*) and sockeye (*Oncorhynchus nerka*) salmon proposed for "threatened" status under the Endangered Species Act.

**Figure 1-**

3. Evolutionarily Significant Units (ESUs) of coho salmon (*Oncorhynchus kisutch*) proposed for "threatened" status under the Endangered Species Act. Note: the final listing determination for the Oregon Coast coho ESU is being extended under ESA section 4(b)(6)(B)(i).

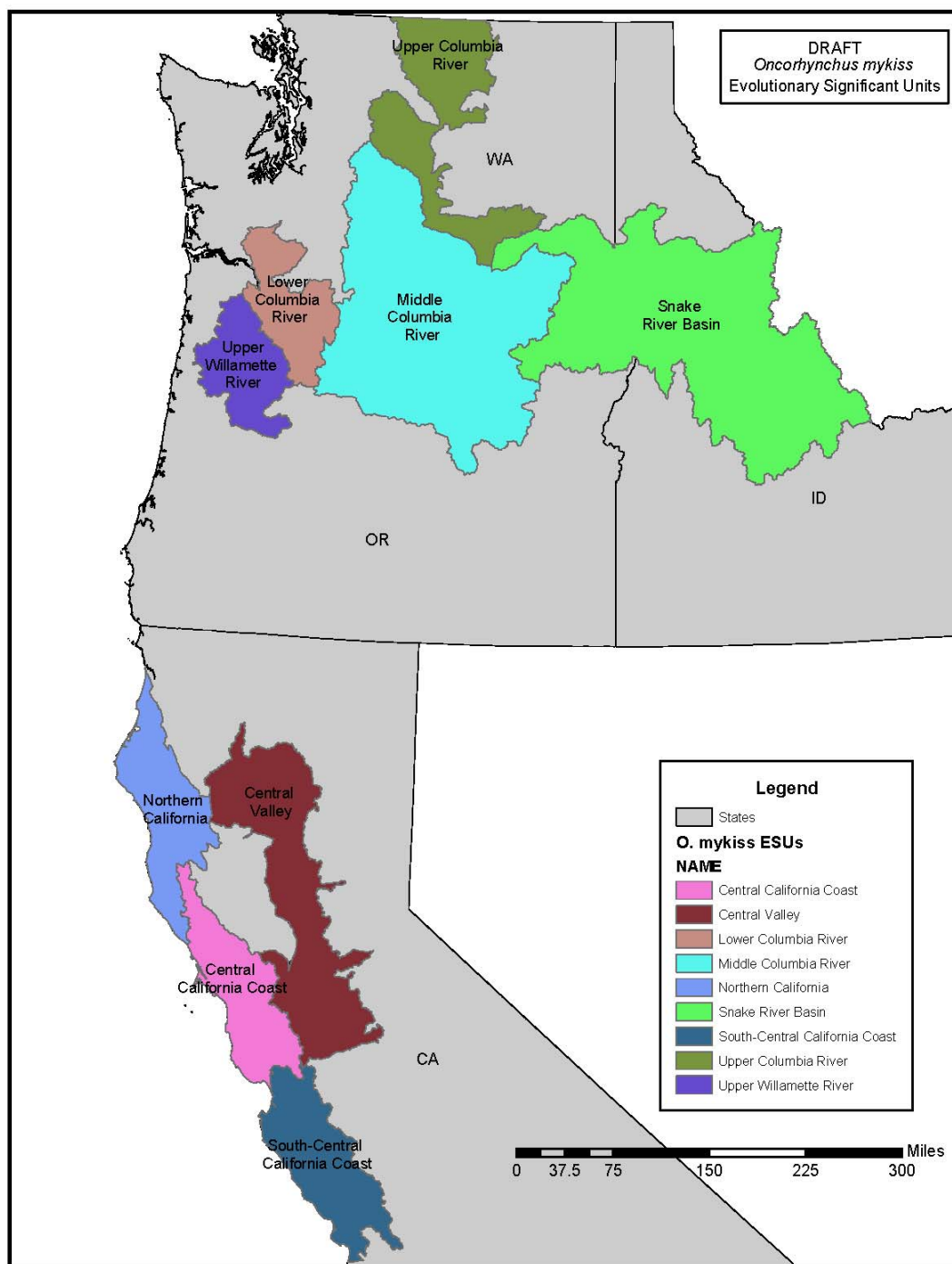


Figure 1-4. Evolutionarily Significant Units (ESUs) of *Oncorhynchus mykiss* (steelhead and co-occurring rainbow trout) proposed for "threatened" status under the Endangered Species Act. Note: the final listing determinations for these nine *O. mykiss* ESUs are being extended under ESA section 4(b)(6)(B)(i).

2. ALTERNATIVES, INCLUDING PROPOSED ACTION

This EA describes and evaluates two alternative actions for protection of threatened ESUs. The environmental impacts of the alternative actions were assessed relative to baseline conditions established by existing laws and regulations (including 4(d) protective regulations in the context of the ESA-listing landscape that would exist once the (non-discretionary) listing determinations take effect). This EA was prepared in accordance with Council on Environmental Quality regulations for implementing NEPA (40 Code of Federal Regulations Parts 1500-1508) and National Oceanographic and Atmospheric Administration environmental review implementing procedures (Administrative Order 216-6, May 20, 1999).

2.1 ALTERNATIVE 1 (NO ACTION)

This alternative consists of no revision to the current 4(d) take prohibitions, which would have the following effects:

- (1) It would leave two ESUs, being newly listed as threatened or proposed for threatened status, without 4(d) protective regulations (the Upper Columbia River *O. mykiss* ESU which was previously listed as endangered and is proposed as threatened, and the Lower Columbia River coho ESU which was previously designated as a candidate species).
- (2) It would retain the inconsistent coverage of the various 4(d) limits on take prohibitions among threatened ESUs.
- (3) It would apply the take prohibitions and applicable limits to newly listed hatchery fish and resident *O. mykiss* (rainbow trout).

The No Action alternative would result in all previously enacted 4(d) rules remaining in place, with no additions or amendments. There would be no take prohibition for one ESU previously listed as endangered, but now proposed as threatened – the Upper Columbia River *O. mykiss* ESU. The Lower Columbia River Coho ESU, formerly a candidate species and now listed as threatened, would not be protected by any take prohibition. The ESUs currently subject to 4(d) protective regulations would continue to be covered by the section 9(a) take prohibitions and applicable limits. Take of all newly listed hatchery fish and resident *O. mykiss* would also be prohibited, though subject to potential limitation of the application of the take prohibitions under one of the existing limits.

2.2 ALTERNATIVE 2 (PROPOSED ACTION)

This alternative consists of the following actions:

- (1) Apply the 4(d) protections and 14 limits promulgated in 2000 (as modified in amendments (4) – (6) below) to one ESU previously listed as endangered, but newly being proposed for threatened status (the Upper Columbia River *O. mykiss* ESU).
- (2) Apply the 4(d) protections and 14 limits promulgated in 2000 (as modified in amendments (4) – (6) below) to the Lower Columbia River coho ESU which is newly being listed as threatened.
- (3) Apply the 4(d) protections and 14 limits promulgated in 2000 (as modified in amendments (4) – (6) below) to the Snake River fall-run chinook, Snake River spring/summer-run chinook, Southern Oregon/Northern California Coast coho, Central Valley spring-run chinook, California Coastal chinook, and Northern California *O. mykiss* ESUs, thus bringing all threatened ESUs under the same 4(d) protective regulations.
- (4) Amend the expired 4(d) limit (§223.203(b)(2)), which provided a temporary exemption for ongoing research with pending permit applications during the 2000 4(d) rulemaking, to temporarily exempt ongoing research during the current rulemaking process.
- (5) Move the description of the limit for Tribal Resource Management Plans (§223.209) so that the text would appear next to the 4(d) rule in the Code of Federal Regulations, improving the clarity of the 4(d) regulations.
- (6) Amend the current 4(d) rule so that the section 9(a) take prohibitions apply to anadromous fish with an intact adipose fin only (that is, the take prohibitions and 4(d) protective regulations would not apply to clipped hatchery fish or resident *O. mykiss* included in the subject ESUs).

2.3 DESCRIPTION OF LIMITS ON TAKE PROHIBITIONS PROMULGATED IN 2000

Under Alternative 2, the proposed action alternative, NMFS would revise the current 4(d) protective regulations to bring all threatened ESUs under the same set of 14 4(d) take limits that were adopted in the 2000 rulemakings (65 FR 42422, July 10, 2000; 65 FR 42485, July 10, 2000), with some modifications. The 2000 rulemakings included the following limits: (1) activities conducted in accordance with ESA section 10 or other authorization; (2) scientific or enhancement activities with pending applications at the time of rulemaking (note, the proposed alternative would remove this limit from the rule because it has expired); (3) emergency actions related to injured, stranded, or dead salmonids; (4) fishery management activities; (5) hatchery and genetic management programs; (6) activities in compliance with joint Tribal/state plans

developed within *United States v. Washington* or *United States v. Oregon*; (7) scientific research activities permitted or conducted by the states; (8) state, local, and private habitat restoration activities; (9) properly screened water diversion devices; (10) routine road maintenance activities; (11) certain park pest management activities in Portland, Oregon; (12) certain municipal, residential, commercial, and industrial development and redevelopment activities; (13) forest management activities on state and private lands within the state of Washington; and (14) activities undertaken consistent with an approved tribal resource management plan. Some programs apply to only one ESU. A summary of each of the limitations as they apply to threatened salmonids is provided in Appendix A.

2.4 PROVIDE TAKE PROTECTION FOR TWO ESUS THAT WOULD OTHERWISE NOT BE PROTECTED

NMFS believes that the 4(d) take prohibitions and limitations are necessary and advisable for the conservation of the Upper Columbia River *O. mykiss* ESU, previously listed as endangered and now being proposed for threatened status, and for the Lower Columbia River Coho ESU, being listed for the first time as threatened. However, the take of listed fish in these two ESUs need not be prohibited when it results from activities meeting specified conservation standards.

NMFS, therefore proposes to apply the ESA section 9(a) take prohibitions as well as the 14 4(d) limits promulgated in 2000 (amended as proposed) to these ESUs. The baseline condition for these ESUs is the lack of any take protections. The proposed action alternative would add coverage under amended 4(d) protective regulations for these two ESUs.

2.5 ALIGN AND SIMPLIFY EXISTING 4(D) PROTECTIVE REGULATIONS FOR ALL THREATENED SALMON AND *O. MYKISS*

Although the section 4(d) regulations for threatened salmonids have proven effective at appropriately protecting threatened salmonid ESUs and permitting certain activities, several of the limits are redundant, outdated, or are located disjunctly in the Code of Federal Regulations. The result is a complex set of 4(d) regulations that increases the administrative and regulatory burden of managing protective regulations for threatened ESUs. The current 4(d) regulations do not effectively convey to the public the specific ESUs for which certain activities may be exempted from the take prohibitions under 4(d). As part of final salmon listing determinations, NMFS is amending the existing section 4(d) protective regulations for threatened salmonids so that they are more consistent across ESUs and can be more efficiently and effectively accessed and interpreted by all affected parties.

The effect of these changes would be to clarify and simplify existing regulations to make the rule more transparent and understandable to co-managers and the public. But for the minor

amendment to the limit providing temporary exemption for ongoing research activities with pending permit applications, there would be no change in terms of the activities that are allowed and prohibited with respect to listed fish, or the processes that must be followed and the criteria that must be met for a limitation of the take prohibitions to be authorized. The amended 4(d) rule would more effectively and efficiently convey the options available for limiting take prohibitions, and also would simplify the practical application of these limits in specific circumstances.

NMFS proposes aligning the 4(d) regulations by making the following specific changes: (1) NMFS proposes to apply the same set of limits to all threatened ESUs by bringing the Snake River fall-run chinook, Snake River spring/summer-run chinook, Southern Oregon/Northern California Coast coho, Central Valley spring-run chinook, California Coastal chinook, and Northern California *O. mykiss* ESUs under the 14 limits promulgated in 2000, as amended; (2) NMFS proposes to amend an expired limit (§223.203(b)(2)); and (3) NMFS proposes to move the description of the limit for Tribal Resource Management Plans (§223.209) so that the text would appear next to the 4(d) rule in the Code of Federal Regulations, thereby improving the clarity of the 4(d) regulations. These three clarifying changes are described in further detail in Appendix C.

2.6 PROHIBIT TAKE OF NEWLY LISTED HATCHERY FISH AND RESIDENT RAINBOW TROUT (*O. MYKISS*) ONLY TO THE EXTENT NECESSARY FOR CONSERVATION OF THE LISTED ESUS

NMFS proposes to amend the current 4(d) regulations to ensure that fisheries and artificial propagation programs are managed consistent with the conservation needs of ESA-listed ESUs. NMFS proposes to exclude listed hatchery fish marked by a clipped adipose fin from section 4(d) protections. (The clipping of adipose fins in hatchery fish just prior to release into the natural environment is a common method for marking hatchery production.) NMFS believes this approach would provide needed flexibility to appropriately manage artificial propagation and direct take of threatened salmon and *O. mykiss* for the conservation and recovery of these ESUs.

Not all hatchery stocks considered part of listed ESUs are of equal utility in conservation and recovery. Certain ESU hatchery stocks may comprise a substantial portion of the genetic diversity remaining in a threatened ESU and are essential for ongoing and future recovery efforts. If released with adipose fins intact, hatchery fish in these populations would be afforded protections under section 4(d) (i.e., their take would be prohibited). Other hatchery stocks, although considered part of a threatened ESU, may have limited or uncertain conservation value. In some cases, they may even harm conservation of the ESU. Artificial propagation programs

producing these populations could release adipose-fin-clipped fish, such that 4(d) protections would not apply, and these fish could be available for other purposes (e.g., fulfilling federal trust and Tribal treaty obligations) while preserving all future recovery options. Additionally, NMFS may have to allow take of listed hatchery stocks to manage the number of hatchery fish allowed to spawn naturally to limit potential adverse effects to spawning natural-origin fish.

Pursuant to the Court's order in *Alsea* decision, NMFS also now must list entire ESUs of resident *O. mykiss*, including both the anadromous form (steelhead) and the resident form (rainbow trout) where they occur in the same area. Provided the proposed *O. mykiss* listings are finalized, absent amendments to the current 4(d) protective regulations, the take of resident rainbow trout would be prohibited (i.e., the no action alternative). The effect of the proposed action alternative relative to the baseline analyzed in this EA is that the take of resident *O. mykiss* would not be prohibited. NMFS believes it does not have sufficient information at this time about the conservation status of rainbow trout to determine that it is necessary and advisable to prohibit their take. Nevertheless, because juvenile steelhead are difficult to distinguish from rainbow trout, the ESA currently requires state fish and wildlife agencies to regulate rainbow trout fisheries to protect listed steelhead. NMFS expects that state regulations would remain in place.

2.7 OTHER PROTECTIVE PROVISIONS OF THE ESA

Section 7(a)(4) of the ESA requires that federal agencies confer with NMFS on any actions likely to jeopardize the continued existence of a species proposed for listing and on actions likely to result in the destruction or adverse modification of proposed critical habitat. For listed species, section 7(a)(2) requires federal agencies to ensure that activities they authorize, fund, or conduct are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a federal action may affect a listed species or its critical habitat, the responsible federal agency must enter into consultation with NMFS. Examples of federal actions likely to affect salmon and *O. mykiss* include authorized land management activities of the U.S. Forest Service and the U.S. Bureau of Land Management, as well as operation of hydroelectric and storage projects of the U.S. Bureau of Reclamation and U.S. Army Corps of Engineers (COE). Such activities include timber sales and harvest, permitting livestock grazing, hydroelectric power generation, and flood control. Federal actions, including the COE section 404 permitting activities under the Clean Water Act, COE permitting activities under the River and Harbors Act, Federal Energy Regulatory Commission licenses for non-federal development and operation of hydropower, and federal salmon hatcheries, may also require consultation.

Sections 10(a)(1)(A) and 10(a)(1)(B) of the ESA provide NMFS authority to permit take that would otherwise be prohibited by the ESA. Section 10(a)(1)(A) scientific research and enhancement permits may be issued to entities (federal and non-federal) conducting research that involves a directed take of listed species. A directed take refers to the intentional take of listed species. NMFS has issued section 10(a)(1)(A) research/enhancement permits for currently listed salmon and *O. mykiss* ESUs for a number of activities, including trapping and tagging, electroshocking to determine population presence and abundance, removal of fish from irrigation ditches, and collection of adult fish for artificial propagation programs. Section 10(a)(1)(B) incidental take permits may be issued to non-federal entities performing otherwise lawful activities that may incidentally take listed species. Types of activities potentially requiring a section 10(a)(1)(B) incidental take permit include operation and release of artificially propagated fish by state or privately operated and funded hatcheries; state or academic research not receiving federal authorization or funding; implementation of state fishing regulations; or logging, road building, grazing, and diverting water into private lands.

2.8 ALTERNATIVES CONSIDERED BUT NOT ANALYZED

NMFS considered three additional possible alternatives that are not analyzed in this document. The first of these was removal of all take provisions for threatened ESUs. This alternative would reflect a decision by NMFS that no protective regulations are needed for the conservation of threatened ESUs. NMFS did not analyze this alternative because it does not meet the purpose and need of providing protection to the threatened ESUs. Existing controls are inadequate for the protection and conservation of these ESUs, consequently, this alternative would be inconsistent with the requirements of the ESA.

The second possible alternative considered but not analyzed would consist of a blanket prohibition on take, with none of the limits contained in the current 4(d) rules. This alternative was previously analyzed in the 2000 4(d) limits EA, in which NMFS determined that it would not meet the purpose and need of providing an adequate level of protection to the threatened ESUs while also approving activities that are necessary and compatible with conservation (NMFS 2000b, 2000c, 2000d, 2000e, 2000f, 2000g).

The third possible alternative considered but not analyzed would consist of extending the 4(d) protections and 14 limits promulgated in 2000 to only the two ESUs newly being listed as or proposed for threatened status (one previously endangered ESU, the Upper Columbia River *O. mykiss* ESU; and one ESU previously identified as a candidate species, the Lower Columbia River coho ESU). NMFS did not analyze this alternative because it does not meet the purpose and need of the action. Although, this alternative would ensure that these ESUs would have the necessary protections under the ESA, it does not standardize and simplify the 4(d) protection for

all threatened ESUs, nor does it provide protection of hatchery fish and resident rainbow trout proposed for listing only to the extent required for the conservation of the listed ESUs.

3. AFFECTED ENVIRONMENT

As discussed in Chapter 4, Subsection 4.1, this EA does not include analyses of site-specific resources since it analyzes policy changes rather than implementation of those policy decisions. However, general and broad impacts can be assessed for those resources that could be affected by the policy changes that would occur under either alternative. The potential impacts would likely be limited to the following resources: fish (i.e., ESUs), recreation, socioeconomics, federal trust and treaty responsibilities to Tribes, environmental justice, and water quality. No other resources are expected to be impacted by the proposed changes, so they were not included in the Affected Environment discussion, or in Chapter 4, Environmental Consequences.

3.1 FISH/ESU DESCRIPTIONS

3.1.1 *Ozette Lake Sockeye*

The Ozette Lake Sockeye ESU consists of sockeye salmon that return to Ozette Lake through the Ozette River and currently spawn primarily in lakeshore upwelling areas in Ozette Lake. Some spawning may also occur downstream of Ozette Lake in the Ozette River or in Coal Creek, a tributary to the Ozette River. The peak harvest of sockeye salmon in the Ozette Lake area was 18,000 fish in 1949. Only one artificial propagation program is considered to be part of the Ozette Lake Sockeye salmon ESU (Appendix B). The program, operated by the Makah Tribe, is derived from native broodstock and has the primary objective of establishing self-sustaining sockeye salmon spawning aggregations in two Ozette Lake tributaries where spawning has not been observed for many decades.

Commercial harvest ended in 1974, and no recreational or ceremonial subsistence fisheries have occurred since 1982. Despite of the curtailment of these fisheries, Ozette Lake Sockeye have not returned to tributaries to spawn, which may be the primary reason why run size has not increased. Investigators have cited three main problems related to road-building and logging that have limited stream spawning habitat: increased magnitude and frequency of peak flows, stream-bed scouring, and degraded water quality. Ozette Lake kokanee, which spawn primarily in tributaries to Ozette Lake and have been observed spawning in lakeshore upwelling areas, are not considered part of this ESU because of the very large genetic difference between this fish and the lake spawning sockeye; however, resident sockeye observed spawning in Ozette Lake with anadromous sockeye are included in this ESU.

The western shore of the lake is part of the Olympic National Park, and the remainder of the land surrounding the lake is privately owned. The Makah and Quileute Native American tribes have land adjacent to the lake, on the north and south sides, respectively. Outside that portion in Olympic National Park, virtually the entire watershed of Ozette Lake has been logged.

3.1.2 *Central Valley Spring-run Chinook*

The Central Valley Spring-run chinook ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries in California (64 FR 50394; September 16, 1999). This ESU does not include any artificially propagated stocks that reside within the historical geographic range of the ESU.

Extensive construction of dams throughout the Sacramento-San Joaquin basin has reduced the California Central Valley ESU to only a small portion of its historical distribution, generating concerns about risks to the spatial structure and diversity of the ESU. The ESU has been reduced to only three extant natural populations from an estimated 27 historical populations. The remaining spring-run chinook populations (Mill, Deer, and Butte Creek tributaries to the Sacramento River) are in close geographic proximity, increasing the ESU's vulnerability to disease or catastrophic events. Although the recent 5-year mean abundance for the three ESU populations remains small (ranging from nearly 500 to over 4,500 spawners), short- and long-term productivity trends are positive, and population sizes have shown continued increases over the abundance levels of the 1980s (with 5-year mean population sizes of 67 to 243 spawners).

The natural population of spring-run Chinook in the Feather River, as well as the Feather River Hatchery spring-run Chinook stock, are considered part of this ESU. Although the hatchery stock shows evidence of introgression with Central Valley fall-run Chinook and is divergent from other within-ESU naturally spawning populations in Deer, Mill, and Butte Creeks, both the Feather River naturally spawning population and the Feather River Hatchery spring-run Chinook stock continue to exhibit a distinct early-returning spring-run phenotype. NMFS' Central Valley Technical Recovery Team believes that this early run timing in the Feather River represents the evolutionary legacy of the spring-run Chinook populations that once spawned above Oroville Dam, and that the extant population in the Feather River may be the only remaining representative of this important ESU component (NMFS 2004d). The Feather River Hatchery spring-run Chinook stock may play an important role in the recovery of spring-run Chinook in the Feather River basin as efforts progress to provide fish passage above Oroville and Englebright Dams in the Feather and Yuba Rivers, respectively.

3.1.3 *California Coastal Chinook*

The California Coastal chinook ESU includes all naturally spawned populations of chinook salmon from rivers and streams south of the Klamath River to the Russian River, California (64 FR 50394; September 16, 1999). Seven artificial propagation programs are considered to be part of the ESU (Appendix B).

Evaluation of the viability of the naturally spawning component of the California Coastal chinook ESU is hindered by the limited availability of data, particularly regarding the abundance and spatial distribution of natural populations within the ESU. Additionally, the data that are available are of varying type, quality, and temporal coverage and are generally not amenable to rigorous estimation of abundance or robust statistical analyses of trends. The little historical and current abundance information that is available indicates that (putative) natural ESU population abundance levels remain depressed relative to historical levels. Evidence suggests that populations have been extirpated or nearly extirpated in the southern part of the ESU, or are extremely low in abundance. This observation, combined with the apparent loss of the spring-run chinook life history in the Eel River Basin and elsewhere in the ESU, indicates risks to the diversity of the ESU. Recently available natural abundance estimates in the Russian River exceed 1,300 fish for 2000 to 2002. These data suggest either the presence of a naturally producing population in the Russian River, or represent straying from other basins or ESUs. No data are available to assess the genetic relationship of the Russian River fish to populations in this or other ESUs.

3.1.4 *Upper Willamette River Chinook*

The Upper Willamette River chinook ESU includes all naturally spawned populations of spring-run chinook salmon in the Clackamas River and in the Willamette River, and its tributaries, above Willamette Falls, Oregon (64 FR 14208; March 24, 1999). Five artificially propagated stocks are considered to be part of the ESU (Appendix B).

There are no direct estimates of natural-origin spawner abundance for the Upper Willamette River chinook ESU. The abundance of adult spring chinook salmon (hatchery and natural fish) passing Willamette Falls has remained relatively steady over the past 50 years (ranging from approximately 20,000 to 70,000 fish), but is only a fraction of peak abundance levels observed in the 1920s (approximately 300,000 adults). Interpretation of abundance levels is confounded by a high but uncertain fraction of hatchery produced fish. The McKenzie River population has shown substantial increases in total abundance (hatchery origin and natural origin fish) in the last two years, while trends in other natural populations in the ESU are generally mixed.

With the relatively large incidence of naturally spawning hatchery fish in the ESU, it is difficult to determine trends in productivity for natural-origin fish. Despite improving trends in total

productivity (including hatchery origin and natural origin fish) since 1995, productivity would be below replacement in the absence of artificial propagation. Approximately 30 to 40 percent of historical total habitat is now inaccessible behind dams. The habitat that is not blocked represents a much larger proportion of the historical *spawning* habitat. The restriction of natural production to just a few areas increases the ESU's vulnerability to environmental variability and catastrophic events. Losses of local adaptation and genetic diversity through the mixing of hatchery stocks within the ESU, and the introgression of out-of-ESU hatchery fall-run chinook, have represented threats to ESU diversity. The recent cessation of the fall-run hatchery, as well as improved marking rates of hatchery fish to assist in monitoring and in the management of a marked-fish selective fishery, are encouraging improvements.

3.1.5 *Lower Columbia River Chinook*

The Lower Columbia River chinook ESU includes all naturally spawned populations of chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to a transitional point between Washington and Oregon east of the Hood River and the White Salmon River, and includes the Willamette River to Willamette Falls, Oregon, exclusive of spring-run chinook salmon in the Clackamas River (64 FR 14208; March 24, 1999). Eleven artificially propagated stocks are considered to be part of the ESU (Appendix B). All of these programs are designed to produce fish for harvest, with three of these programs also being implemented to augment the naturally spawning populations in the basins where the fish are released.

Many populations within the Lower Columbia River chinook ESU have exhibited pronounced increases in abundance and productivity in recent years, possibly due to improved ocean conditions. Abundance estimates of naturally spawned populations in this ESU are, however, uncertain due to a high (approximately 70 percent) fraction of naturally spawning hatchery fish and a low marking rate (only one to two percent) of hatchery-produced fish. Abundance estimates of naturally produced spring chinook have improved since 2001 due to the marking of all hatchery spring chinook releases, allowing for the enumeration of hatchery spring chinook and weirs, traps, and on spawning grounds. Despite recent improvements, long-term trends in productivity are below replacement for most populations in the ESU. It is estimated that eight to 10 historical populations in the ESU have been extirpated or nearly extirpated. Although approximately 35 percent of historical habitat has been lost in this ESU due to the construction of dams and other impassable barriers, this ESU exhibits a broad spatial distribution in a variety of watersheds and habitat types. Natural production currently occurs in approximately 20 populations, although only one population has a mean spawner abundance exceeding 1,000 fish.

There is concern that the spring-run populations comprise most of the extirpated populations. The disproportionate loss of the spring-run life history represents a risk for ESU diversity.

Additionally, of the four hatchery spring-run chinook populations considered to be part of this ESU, two are propagated in rivers that are within the historical geographic range of the ESU but that likely did not support spring-run populations. High hatchery production in the Lower Columbia River poses genetic and ecological risks to the natural populations in the ESU and complicates assessments of their performance.

3.1.6 *Puget Sound Chinook*

The Puget Sound chinook ESU includes all naturally spawned populations of chinook salmon from rivers and streams flowing into Puget Sound including the Straits of Juan De Fuca from the Elwha River, eastward, including rivers and streams flowing into Hood Canal, South Sound, North Sound, and the Strait of Georgia in Washington (64 FR 14208; March 24, 1999). Twenty-six artificially propagated stocks are considered to be part of the ESU (Appendix B). Five of the programs are directed at conservation and are specifically implemented to preserve and increase the abundance of native populations in their natal watersheds where habitat needed to sustain the populations naturally at viable levels has been lost or degraded. The remaining programs considered to be part of the ESU are operated primarily for fisheries harvest augmentation purposes (some of which also function as research programs) using transplanted within-ESU-origin chinook salmon as broodstock.

Although populations in the ESU have not experienced the dramatic increases in abundance in the last two to three years that have been evident in many other ESUs, more populations have shown modest increases in escapement in recent years than have declined (13 populations versus 9). Most populations have a recent 5-year mean abundance of fewer than 1,500 natural spawners, with the Upper Skagit population being a notable exception (the recent 5-year mean abundance for the Upper Skagit population approaches 10,000 natural spawners). Currently observed abundances of natural spawners in the ESU are several orders of magnitude lower than estimated historical spawner capacity and well below peak historical abundance (approximately 690,000 spawners in the early 1900s). Recent 5-year and long-term productivity trends, however, remain below replacement for the majority of the 22 extant populations of Puget Sound chinook. The Puget Sound Technical Recovery Team has identified 31 historical populations (Ruckelshaus *et al.* 2002), of which nine are believed to be extinct, most of which were “early run” or “spring” populations. Past hatchery practices that transplanted stocks among basins within the ESU, and present programs using transplanted stocks that incorporate little local natural broodstock, represent additional risk to ESU diversity.

3.1.7 *Snake River Fall-run Chinook*

The Snake River fall-run chinook ESU includes all naturally spawned populations of fall-run chinook salmon in the mainstem Snake River and in the Tucannon River, Grande Ronde River, Imnaha River, Salmon River, and Clearwater River subbasins (57 FR 14653, April 22, 1992; 57 FR 23458, June 3, 1992). Three artificially propagated stocks are considered to be part of the ESU (Appendix B), all based on the Lyons Ferry Hatchery stock. When naturally spawning fall chinook declined to fewer than 100 fish in 1991, most of the genetic legacy of this ESU was preserved in the Lyons Ferry Hatchery broodstock (NMFS 1991a). These three programs are managed to enhance listed Snake River fall chinook salmon and presently include the Lyons Ferry Hatchery, Nez Perce Tribal Hatchery, and Oxbow Hatchery (an Idaho Power Company mitigation hatchery).

The abundance of natural-origin spawners in the Snake River fall-run chinook ESU for 2001 (2,652 adults) exceeded 1,000 fish for the first time since counts began at the Lower Granite dam in 1975. The recent 5-year mean abundance of 871 naturally produced spawners, however, generated concern that despite recent improvements the abundance level is very low for an entire ESU. With the exception of the marked increase in 2001, the ESU has fluctuated between approximately 500 to 1,000 natural spawners since 1975, suggesting a higher degree of stability in growth rate at low population levels than is seen in other salmonid populations. Increasing returns reflect improved ocean conditions, in part, improved management of the mainstem hydrosystem flow regime, and an increasing contribution from the Lyons Ferry Hatchery supplementation program. Due to the large fraction of naturally spawning hatchery fish, however, it is difficult to assess the productivity of the natural population. Depending upon the assumption made regarding the reproductive contribution of hatchery fish, long-term and short-term trends in productivity are at or above replacement. It is estimated that approximately 80 percent of historical spawning habitat was lost with the construction of a series of Snake River mainstem dams. The loss of spawning habitats and the restriction of the ESU to a single extant naturally spawning population increases the ESU's vulnerability to environmental variability and catastrophic events.

3.1.8 *Snake River Spring/Summer-run Chinook*

The Snake River spring/summer-run chinook ESU includes all naturally spawned populations of spring/summer-run chinook salmon in the mainstem Snake River and the Tucannon River, Grande Ronde River, Imnaha River, and Salmon River subbasins (57 FR 23458; June 3, 1992). Nine artificial propagation programs produce spring/summer-run chinook salmon that are considered to be part of the Snake River spring/summer-run chinook ESU (Appendix B). A portion of these programs are managed to enhance listed natural populations, including the use

of captive broodstock hatcheries in the upper Salmon River, Lemhi River, East Fork Salmon River, and Yankee Fork populations. These enhancement programs all use broodstock founded from the local native populations, and have increased the number of fish spawning naturally in several historical production areas.

Currently, the use of non-ESU broodstock sources is restricted to Little Salmon/Rapid River (lower Salmon River tributary), mainstem Snake River at Hells Canyon, and the Clearwater River. These non-ESU programs appear to be isolated from natural production areas and are thought to have little adverse impact on this ESU.

3.1.9 *Southern Oregon/Northern California Coast Coho*

The Southern Oregon/Northern California Coast Coho ESU includes all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon, and Punta Gorda, California (62 FR 24588; May 6, 1997). Three artificially propagated stocks are considered to be part of the ESU (Appendix B).

The only reliable time series of adult abundance for the Southern Oregon/Northern California Coast Coho ESU is for the Rogue River population in Oregon. The California portion of the ESU is characterized by scarce data, with only a few available spawner indices and presence-absence surveys. The recent 5-year mean abundance for the Rogue River is approximately 5,000 natural spawners, and is the highest such abundance for the Rogue River data series (since 1980). Both long- and short-term productivity trends for Rogue River natural spawners are above replacement. These positive trends for the Rogue River population most likely reflect the effects of reduced harvest rather than improved freshwater conditions and population productivity (NMFS 2003b). Less reliable indices of spawner abundance in several California populations suggest flat or declining trends. Relatively low levels of observed presence in historically occupied coho streams (32 to 56 percent from 1986 to 2000) indicate continued low abundance in the California portion of this ESU. Indications of strong 2001 returns in several California populations, presumably due to favorable freshwater and ocean conditions, is encouraging but must be evaluated in the context of more than a decade of generally poor performance. Nonetheless, the high occupancy rate of historical streams in 2001 suggests that much habitat remains accessible to coho salmon. Although extant populations reside in all major river basins within the ESU, the loss of local populations in the Trinity, Klamath, and Rogue River systems is a concern (NMFS 2003b). The high hatchery production in these systems may mask trends in ESU population structure, and pose risks to ESU diversity. The termination of several out-of-ESU hatcheries in California is expected to mitigate risks to ESU diversity.

3.1.10 *Oregon Coast Coho*

The Oregon Coast Coho ESU includes all naturally spawned populations of coho salmon in Oregon coastal streams south of the Columbia River and north of Cape Blanco (63 FR 42587; August 10, 1998). Five artificially propagated stocks are considered part of the ESU (Appendix B). All of these programs are operated by the state of Oregon to provide harvest opportunities. Substantial changes in coho salmon propagation have occurred over the previous 10 years to achieve a balance between obligations to help conserve coastal coho and to mitigate for habitat degradation, and maintain fishing opportunities. These changes include a dependence on local origin fish for broodstock, management actions to reduce straying (ten percent is the objective), and cessation of stocking coho in five coastal rivers. Coastal coho stocking has decreased by 84 percent since 1993.

The abundance of natural spawners in the Oregon Coast Coho ESU for 2001 and 2002 (163,000 and 264,000 spawners, respectively) far exceeded the abundance observed for the past several decades, and preliminary projections for 2003 (approximately 118,000 spawners) suggest that these substantial increases may be sustained. Furthermore, increases in natural spawner abundance have occurred in many populations in the northern portion of the ESU (i.e., populations that were the most depressed at the time of the last review) (NMFS 1997). When the abundance data are evaluated by coho brood year, however, it is apparent that the strong year-classes of the last three years were preceded by three years of recruitment failure. Recruitment failure (meaning that a given year-class of natural spawners failed to replace itself when its offspring returned to the spawning grounds three years later) occurred for the 1994, 1995, and 1996 brood years returning in 1997, 1998, and 1999, respectively. These three years of recruitment failure are the only such instances that have been observed in the entire time series of data collected for Oregon Coast coho salmon. The long-term trends in ESU productivity are still negative due to the poor performance of the 1994 to 1996 brood years. The degradation of many lake habitats and the resultant impacts on several lake populations in the Oregon Coast Coho ESU also pose risks to ESU diversity.

3.1.11 *Lower Columbia River Coho (Candidate Species)*

The Lower Columbia River Coho ESU includes all naturally spawned populations of coho salmon in the Columbia River and its tributaries from the mouth of the Columbia, up to and including the Big White Salmon and Hood Rivers. Twenty-five artificially propagated stocks are considered to be part of the ESU (Appendix B).

There are only two extant populations in the Lower Columbia River Coho ESU with appreciable natural production (the Clackamas and Sandy River populations), from an estimated 23 historical populations in the ESU. Although adult returns in 2000 and 2001 exhibited moderate increases,

the recent 5-year mean of natural-origin spawners for the two populations represents less than 1,500 adults. The Sandy River population has exhibited recruitment failure in five of the last 10 years, and has exhibited a poor response to reductions in harvest. During the 1980s and 1990s, natural spawners were not observed in the lower tributaries in the ESU. Coincident with the 2000-2001 abundance increases in the Sandy and Clackamas populations, a small number of coho spawners of unknown origin have been surveyed in some lower tributaries. Short- and long-term trends in productivity are below replacement.

Approximately 40 percent of historical habitat is currently inaccessible, which restricts the number of areas that might support natural production, and further increases the ESU's vulnerability to environmental variability and catastrophic events. The extreme loss of naturally spawning populations, the low abundance of extant populations, diminished diversity, and fragmentation and isolation of the remaining naturally produced fish result in considerable risks to the ESU. The small number of naturally produced spawners in this ESU contrasts with the very large number of hatchery-produced adults. The abundance of hatchery coho returning to the Lower Columbia River in 2001 and 2002 exceeded one million and 600,000 fish, respectively. Although the scale of hatchery production poses genetic and ecological threats to the extant natural populations in the ESU, collectively these hatchery stocks represent a substantial portion of the ESU's remaining genetic resources. Natural populations in smaller tributaries near the mouth of the Columbia River are largely extinct. Some of the ESU hatchery stocks (e.g., the Big Creek hatchery stock) are preserving the remaining genetic resources of the historical gene pool, and other populations are preserving diversity in run timing that has been impacted by the timing of the in-river harvest and artificial selection in hatcheries.

3.1.12 *Columbia River Chum*

The Columbia River Chum ESU includes all naturally spawned populations of chum salmon in the Columbia River and its tributaries in Washington and Oregon (64 FR 14508; March 25, 1999). Three artificially propagated stocks are considered to be part of the ESU (Appendix B). These are conservation programs designed to support natural production and all use naturally produced adults for broodstock. These programs were only recently established (1998 to 2002), with the first hatchery chum returning in 2002.

Approximately 90 percent of the historical populations in the Columbia River Chum ESU are extirpated, or nearly so. During the 1980s and 1990s, the combined abundance of natural spawners for the Lower and Upper Columbia River Gorge, Washougal, and Grays River populations was below 4,000 adults. In 2002, however, the abundance of natural spawners exhibited a substantial increase evident at several locations in the ESU. The preliminary

estimate of natural spawners is approximately 20,000 adults. The cause of this dramatic increase in abundance is unknown. Improved ocean conditions, the initiation of a supplementation program in the Grays River, improved flow management at Bonneville Dam, favorable freshwater conditions, and increased survey sampling effort may all have contributed to the elevated 2002 abundance. Long- and short-term productivity trends for ESU populations, however, are at or below replacement. The loss of off-channel habitats and the extirpation of approximately 17 historical populations increase the ESU's vulnerability to environmental variability and catastrophic events. The populations that remain are low in abundance and have limited distribution and poor connectivity.

3.1.13 *Hood Canal Summer-run Chum*

The Hood Canal summer-run ESU includes summer-run chum salmon populations in Hood Canal in Puget Sound and in Discovery and Sequim Bays on the Strait of Juan de Fuca. It may also include summer-run chum salmon in the Dungeness River, but the existence of that run is uncertain. The summer-run spawn from mid-September to mid-October. Eight artificially propagated stocks are considered to be part of the ESU (Appendix B).

Adult returns for some populations in the Hood Canal summer-run Chum ESU showed modest improvements in 2000, with upward trends continuing in 2001 and 2002. The recent 5-year mean abundance varies among populations in the ESU, ranging from 1 to nearly 4,500 fish. Hood Canal summer-run Chum is the focus of an extensive rebuilding program developed and implemented since 1992 by the state and Tribal co-managers. Two populations (the combined Quilcene and Union River populations) are above the conservation thresholds established by the rebuilding plan; however, most populations remain depressed. Estimates of the fraction of naturally spawning hatchery fish exceed 60 percent for some populations, indicating that reintroduction programs are supplementing the numbers of total fish spawning naturally in streams. Long-term trends in productivity are above replacement for only the Quilcene and Union River populations. Buoyed by recent increases, seven populations are exhibiting short-term productivity trends above replacement. Of an estimated 16 historical populations in the ESU, seven populations are believed to have been extirpated or nearly extirpated. Most of these extirpations have occurred in populations on the eastern side of Hood Canal, generating additional concern for ESU spatial structure.

3.1.14 *Consideration of Resident *O. mykiss* Populations in Listing Determinations*

In addition to an anadromous *O. mykiss* life history (i.e., steelhead), *O. mykiss* exhibits non-anadromous or resident forms (i.e., rainbow trout). Where the two forms co-occur, the offspring of resident fish may migrate to the sea, and the offspring of anadromous fish may remain in

streams as resident fish. The change from the anadromous life form to the resident life form can also result from imposed physical or physiological barriers to migration. Studies of genetic differences have indicated greater differences among geographically separated *O. mykiss* populations of the same life-history form than between anadromous and resident life-history forms in the same geographical area. No suite of morphological or genetic characteristics has been found that consistently distinguishes between the two life-history forms.

In its previous status reviews of steelhead ESUs, NMFS concluded that the available data suggest that resident rainbow trout and steelhead in the same area generally share a common gene pool (at least over evolutionary time periods) and included resident and anadromous populations in the same ESU. Resident populations above long-standing natural barriers, and those populations that have resulted from the introduction of non-native trout, were not considered part of these ESUs. In the case of resident populations upstream of impassable human-caused migration barriers (e.g., large mainstem hydroelectric dams), NMFS found insufficient information to merit their inclusion in steelhead ESUs. The agency generally concluded that resident populations upstream of impassable man-made barriers must be evaluated on a case-by-case basis as more information becomes available on their relationships to below-barrier populations, or on the role these above-barrier resident populations might play in conserving below-barrier populations of *O. mykiss*.

In previous ESA listing determinations, NMFS did not list resident populations when it was determined that the entire ESU warranted listing. As noted above, the *Alsea* Court rejected the practice of listing only a subset of an ESU, or distinct population segment under the ESA (*Alsea Valley Alliance v. Evans* [161 F. Supp. 2d 1154, D. Oreg. 2001]). A key effect of NMFS' proposed *O. mykiss* listing determinations, therefore, is that previously unlisted below-barrier rainbow trout would be listed.

3.1.15 South-central California Coast *O. mykiss*

The South-Central California Coast *O. mykiss* ESU includes all naturally spawned populations of steelhead in streams from the Pajaro River (inclusive) to, but not including, the Santa Maria River, California (62 FR 43937; August 18, 1997). Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the South-Central California Coast *O. mykiss* ESU. The ESU status of native resident populations above recent (usually manmade) impassable barriers, but below natural barriers, was not resolved. These resident populations would not be part of the South-Central California Coast *O. mykiss* ESU until such time that significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships. There are no artificial

propagation programs that produce fish considered to be part of the South-Central California *O. mykiss* ESU (Appendix B).

There is little abundance information for the South-Central California Coast *O. mykiss* ESU. Data are not available for the two largest river systems in the ESU, the Pajaro and Salinas basins. These systems are degraded and are expected to have steelhead runs reduced in size from historical levels. Data available for the Carmel River underscore the population's vulnerability to drought conditions, as well as its dependence on the intensive management of the river system. The most recent 5-year mean abundance of fish in the Carmel River is approximately 600 adults. Despite observed and inferred declines in abundance, the current spatial distribution of the anadromous life form in the ESU does not appear to be much reduced from what occurred historically. *O. mykiss* are present in approximately 86 to 95 percent of historically occupied streams (the uncertainty in the estimated occupancy is due to three streams that could not be accessed for population surveys). The Pajaro and Salinas basins are spatially and ecologically distinct from other ESU populations, such that further degradation of these areas would adversely impact ESU spatial structure and diversity. Historically, resident fish are believed to have occurred in all areas in the ESU used by steelhead, although current distribution is more restricted.

3.1.16 Central California Coast *O. mykiss*

The Central California Coast *O. mykiss* ESU includes all naturally spawned populations of steelhead in California streams from the Russian River to Aptos Creek, as well as the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin (62 FR 43937; August 18, 1997). Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Central California Coast *O. mykiss* ESU. The ESU status of native resident populations above recent (usually man-made) impassable barriers, but below natural barriers, was not resolved. These resident populations are not considered part of the Central California Coast *O. mykiss* ESU until significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships. Recent genetic data regarding three subpopulations of native fish above Rubber Dam 1 on Alameda Creek strongly suggests that they should be considered part of the ESU. Nielson (2003) found that these subpopulations were more similar to each other and other populations within the ESU than they were to populations outside the ESU. NMFS, therefore, considers native resident *O. mykiss* populations above Dam 1 on Alameda Creek to be part of the Central California Coast *O. mykiss* ESU.

Two artificially propagated stocks are considered to be part of the ESU (Appendix B). The hatchery on the Russian River is large-scale program intended to provide recreational fishing opportunities, as well as to augment local steelhead abundance. The hatchery on Scott Creek is a much smaller-scale program, incorporates natural-origin fish from Scott Creek and nearby San Lorenzo Creek for broodstock, and is intended to augment the local natural population.

There are no time series of population data for the Central California Coast *O. mykiss* ESU. The population in the largest river system in the ESU, the Russian River, is believed to have declined sevenfold since the mid-1960s. Juvenile density information is available for five “representative” populations, and each exhibits a downward decline over the last eight years of available data. Predation by increasing numbers of California sea lions at river mouths and during the ocean phase was noted as a recent development also posing significant risk. Juvenile *O. mykiss* have been observed in approximately 82 percent of historically occupied streams, indicating that the ESU continues to be spatially well distributed. Impassible dams have, however, cut off substantial portions of spawning habitat in some basins, generating concern about ESU spatial structure. Historically, resident fish are believed to have occurred in all areas in the ESU used by steelhead, although current distribution is more restricted.

3.1.17 Northern California *O. mykiss*

The Northern California *O. mykiss* ESU includes steelhead in California coastal river basins from Redwood Creek south to the Gualala River (inclusive) (65 FR 36074; June 7, 2000). Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Northern California *O. mykiss* ESU. The ESU status of native resident populations above recent (usually man-made) impassable barriers, but below natural barriers, was not resolved. These resident populations are not considered part of the Northern California *O. mykiss* ESU until significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships.

Two artificially propagated stocks are considered part of the ESU (Appendix B). The Mad River steelhead hatchery is a large-scale program aimed at providing increased recreational fishing opportunities for steelhead on the northern California coast rather than augmenting naturally spawning populations. The other two propagation programs are very small ventures aimed at augmenting local steelhead abundance.

There is little historical abundance information for the Northern California *O. mykiss* ESU; however, the available data (dam counts on the Eel and Mad Rivers) indicate a dramatic decline from the abundance levels of the 1930s. The three available summer steelhead data sets exhibit recent 5-year mean abundance levels from three to 418 adults and exhibit downward short- and long-term trends. Short- and long-term abundance trends for the one current winter steelhead

data series show a slightly positive trend; however, the recent 5-year mean abundance level is extremely low (32 adults). The juvenile density data for six of 10 (putative) independent populations exhibit declining trends. Despite low abundance and downward trends, *O. mykiss* appears to be still widely distributed throughout this ESU. Historically, resident fish are believed to have occurred in all areas in the ESU used by steelhead, although current distribution is more restricted. In this ESU, resident fish do not substantially increase the total ESU abundance.

3.1.18 California Central Valley *O. mykiss*

The California Central Valley *O. mykiss* ESU includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries (63 FR13347; March 19, 1998). Resident populations of *O. mykiss* below impassible barriers (natural and manmade) that co-occur with anadromous populations are included in the California Central Valley *O. mykiss* ESU. The ESU membership of native resident populations above recent (usually manmade) impassable barriers, but below natural barriers, was not resolved. These resident populations are not considered to be part of the California Central Valley *O. mykiss* ESU, until such time that significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships.

Two artificial propagation programs are considered to be part of the ESU (Appendix B). Both programs are located in the Sacramento River basin and are large-scale mitigation facilities intended to support recreational fisheries for steelhead rather than to supplement naturally spawning populations.

Little information is available regarding the viability of the naturally spawning component of the California Central Valley *O. mykiss* ESU. Anadromous *O. mykiss* spawning above the Red Bluff Diversion Dam have a small population size (the most recent 5-year mean is less than 2,000 adults) and exhibit strongly negative trends in abundance and population growth rate; however, there have not been any escapement estimates made for the area above the Red Bluff Diversion Dam since the mid 1990s. The only recent ESU-level estimate of abundance is a crude extrapolation from the incidental catch of out-migrating juvenile steelhead captured in a midwater-trawl sampling program for juvenile chinook salmon below the confluence of the Sacramento and San Joaquin Rivers. The extrapolated abundance of naturally spawning female steelhead involves broad assumptions about female fecundity (number of eggs produced per female) and egg-to-smolt survival rates. Based on this extrapolation, it is estimated that on average, between 1998 and 2000, approximately 181,000 juvenile steelhead were produced naturally each year in the Central Valley by approximately 3,600 spawning female steelhead. It

is estimated that there were one to two million spawners in the Central Valley prior to 1850 and approximately 40,000 spawners in the 1960s. Although it appears that *O. mykiss* remain widely distributed in Sacramento River tributaries, the vast majority of historical spawning areas are currently above impassable dams. Historically, resident fish are believed to have occurred in all areas in the ESU used by steelhead, although current distribution is more restricted.

3.1.19 *Upper Willamette River O. mykiss*

The Upper Willamette River ESU includes the Willamette River and its tributaries, upstream of Willamette Falls. The portion of the Willamette River downstream of Willamette Falls is included in the Lower Columbia River ESU. The upper river has been separated from the lower river, because NMFS has determined that the steelhead from the upper river are genetically distinct from those in the lower river. Willamette Falls is a migration barrier to certain runs of steelhead (i.e., summer steelhead), so reproductive isolation occurs. The natural run of steelhead that occurs above the falls is winter steelhead. Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Upper Willamette River *O. mykiss* ESU. Although there are no obvious physical barriers separating populations upstream of Willamette Falls from those lower in the basin, resident *O. mykiss* in these upper basins are quite distinctive both phenotypically and genetically and are not considered part of the ESU. The ESU status of native resident populations above recent (usually man-made) impassable barriers, but below natural barriers, was not resolved. These resident populations are not considered to be part of the Upper Willamette River *O. mykiss* ESU until substantial scientific information becomes available affording a case-by-case evaluation of their ESU relationships.

3.1.20 *Lower Columbia River O. mykiss*

The Lower Columbia River *O. mykiss* ESU includes all naturally spawned populations of steelhead in streams and tributaries to the Columbia River between the Cowlitz and Wind Rivers, Washington (inclusive), and the Willamette and Hood Rivers, Oregon (inclusive). Excluded are steelhead in the Upper Willamette River Basin above Willamette Falls and steelhead from the Little and Big White Salmon Rivers in Washington. Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Lower Columbia River *O. mykiss* ESU. The ESU status of native resident populations above recent (usually man-made) impassable barriers, but below natural barriers, was not resolved. These resident populations are not considered to be part of the Lower Columbia River *O. mykiss* ESU until significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships.

There are five artificial propagation programs releasing hatchery steelhead that are considered to be a part of the Lower Columbia River *O. mykiss* ESU (Appendix B). All of these programs are designed to produce fish for harvest, but are also implemented to augment the natural spawning populations in the basins where the fish are released.

Some anadromous populations in the Lower Columbia River *O. mykiss* ESU, particularly summer-run steelhead populations, have shown encouraging increases in abundance in the last two to three years. Population abundance levels, however, remain small (no population has a recent 5-year mean abundance greater than 750 spawners). A number of populations have a substantial fraction of hatchery-origin spawners and are hypothesized to be sustained largely by hatchery production. Long-term trends in spawner abundance are negative for seven of nine populations for which there are sufficient data, and short-term trends are negative for five of seven populations. It is estimated that four historical populations have been extirpated or nearly extirpated. Only half of 23 historical populations currently exhibit appreciable natural production. Although approximately 35 percent of historical habitat has been lost in this ESU due to the construction of dams or other impassible barriers, the ESU exhibits a broad spatial distribution in a variety of watersheds and habitat types.

3.1.21 Middle Columbia River *O. mykiss*

The Middle-Columbia River ESU is an inland ESU and includes the part of the Columbia River and its tributaries from Mosier Creek in Oregon upstream to (and including) the Yakima River in Washington. Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Middle Columbia River *O. mykiss* ESU. The ESU status of native resident populations above recent (usually man-made) impassible barriers, but below natural barriers, was not resolved. These resident populations are not considered part of the Middle Columbia River *O. mykiss* ESU until significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships.

Three artificially propagated stocks are considered part of the ESU (Appendix B). All of these hatchery stocks are designed to produce fish for harvest, although two are also implemented to augment the natural spawning populations in the basins where the fish are released.

The abundance of natural populations in the Middle Columbia River *O. mykiss* ESU has increased substantially over the past five years. The Deschutes and Upper John Day rivers have recent 5-year mean abundance levels in excess of their respective interim recovery target abundance levels (NMFS 2002). Due to an uncertain proportion of out-of-ESU strays in the Deschutes River, the recent increases in this population are difficult to interpret. These interim recovery targets articulate the geometric mean of natural-origin spawners to be sustained over eight years or approximately two salmonid generations, as well as a geometric mean natural

replacement rate greater than one. The Umatilla River's recent 5-year mean natural population abundance is approximately 72 percent of its interim recovery target abundance level. The natural populations in the Yakima River, Klickitat River, Touchet River, Walla Walla River, and Fifteen-mile Creek, however, remain well below their interim recovery target abundance levels. Long-term trends for 11 of 12 production areas in the ESU were negative, although it was observed that these downward trends are driven, at least in part, by a peak in returns in the middle to late 1980s, followed by relatively low escapement levels in the early 1990s. Short-term trends in the 12 production areas were mostly positive from 1990 to 2001. The number of natural returns to the Yakima River (ten percent of the interim recovery target abundance level, historically a major production center for the ESU) continued to be low. Anadromous and resident *O. mykiss*, however, remain well distributed in the majority of subbasins in the Middle Columbia River ESU. The presence of substantial numbers of out-of-basin (and largely out-of-ESU) natural spawners in the Deschutes River raised substantial concern regarding the genetic integrity and productivity of the native Deschutes population. The extent to which this straying is an historical natural phenomenon is unknown. The cool Deschutes River temperatures may attract fish migrating in the comparatively warmer Columbia River waters, thus inducing high stray rates. Several sources indicate that resident fish are very common in the ESU and may greatly outnumber anadromous fish.

3.1.22 Upper Columbia River *O. mykiss*

The Upper Columbia River *O. mykiss* ESU includes all naturally spawned populations of steelhead in streams in the Columbia River Basin upstream from the Yakima River, Washington, to the United States-Canada border (62 FR 43937; August 18, 1997). Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Upper Columbia River *O. mykiss* ESU. The ESU status of native resident populations above recent (usually man-made) impassible barriers, but below natural barriers, was not resolved. These resident populations are not considered to be part of the Upper Columbia River *O. mykiss* ESU until significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships. Two artificially propagated stocks are considered part of the ESU (Appendix B).

The number of naturally produced fish in the Upper Columbia River *O. mykiss* ESU has increased in the last two to three years. The 1996 to 2001 average return through the Priest Rapids Dam fish ladder (just below the upper Columbia steelhead production areas) was approximately 12,900 total adults (including both hatchery and natural origin fish), compared to 7,800 adults from 1992 to 1996; however, the recent 5-year mean abundances for naturally spawned populations in this ESU are 14 to 30 percent of their interim recovery target abundance levels.

3.1.23 Snake River Basin *O. mykiss*

The Snake River Basin *O. mykiss* ESU includes all naturally spawned populations of steelhead in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho (62 FR 43937; August 18, 1997). Resident populations of *O. mykiss* below impassible barriers (natural and man-made) that co-occur with anadromous populations are included in the Snake River Basin *O. mykiss* ESU. The ESU status of native resident populations above recent (usually man-made) impassible barriers, but below natural barriers, was not resolved. These resident populations are not considered to be part of the Snake River Basin *O. mykiss* ESU until significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships. Hatchery rainbow trout that have been introduced to the Clearwater River and other areas within the ESU are not be considered part of the ESU.

Four artificial propagation programs produce steelhead that are considered to be part of the Snake River Basin *O. mykiss* ESU (Appendix B) in the Snake River Basin.

Scant information on adult spawning escapement for specific tributary production areas in the Snake River Basin *O. mykiss* ESU makes a quantitative assessment of viability difficult. Annual return estimates are limited to counts of the aggregate return over Lower Granite Dam and spawner estimates for the Tucannon, Grande Ronde, and Imnaha Rivers. The 2001 Snake River steelhead return over Lower Granite Dam was substantially higher relative to the low levels seen in the 1990s; the recent 5-year mean abundance (14,768 natural returns) is approximately 28 percent of the interim recovery target level. The abundance surveyed in sections of the Grande Ronde, Imnaha, and Tucannon rivers was generally improved in 2001; however, the recent 5-year abundance and productivity trends were mixed. Five of the nine available data series exhibit positive long- and short-term trends in abundance. Most long-term population growth rate estimates for the nine available series were below replacement. Most of the short-term population growth rates were marginally above replacement or well below replacement, depending upon the assumption made regarding the effectiveness of hatchery fish in contributing to natural production.

3.2 RECREATION AND COMMERCIAL FISHING

Various recreational activities occur in the action area, including fishing (subsection 1.5, Action Area). In some parts of the analysis area, recreation is an important part of community and local economic development, supported by local planning documents for parks, open space, and recreation. Recreation is also increasingly part of the mix of uses on Federal lands. For example, in a report prepared by ECONorthwest, citing a Forest Service analysis, the national

forests contribute \$145 billion to the national economy, three quarters (\$108 billion) of which is accounted for by recreation (ECONorthwest 2001).

Recreational fishing occurs in various parts of the analysis area, varying by seasons, species, abundance, and various management regimes. Recreational salmon fisheries include ocean, inland marine, and freshwater fisheries as far inland as Idaho. The value of sport harvest fluctuates according to the allowable catch, which is dictated by the abundance of fish runs and associated local harvest regulations (Bonneville Power Administration 2001). For example, the Pacific Fishery Management Council has estimated personal income effects of ocean sport fishing in Oregon and Washington in 1993 to be around \$12.5 million annually, down from \$20 million or more in the 1980s due to recent harvest restrictions to protect weak stocks of coho and chinook salmon (Bonneville Power Administration 2001). Economic value of freshwater sport fishing for anadromous fish in the early 1990s has been estimated to be about \$3 million annually and has not varied by much (Bonneville Power Administration 2001).

Table 3-1 provides a summary of the value of the fishing industry as a whole in Washington, Oregon, Idaho, and California. These numbers take into account all fishing-related activities.

Table 3-1. 2000 Fishing Industry Data by State.

	Total Employment (full-time and part-time jobs)	Personal Income (thousands of \$)	Wage and Salary Disbursements (thousands of \$)
Washington	10,063	392,855	149,477
Oregon	3,426	4,4279	13,045
Idaho	518	3,373	1,018
California	7,104	103,386	41,843
Total	21,111	\$543,893	\$205,383

1/ Source: U.S Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data, Annual State Personal Income 2001.

Catch and income from commercial fishing vary from year to year. Decreased fish abundance in the 1990s and increased production of farmed salmon have reduced the overall present value of the commercial salmon fishing industry in the analysis area.

In the state of Oregon, the Department of Fish and Wildlife issues 115,919 salmon and steelhead tags (Oregon Department of Fish and Wildlife July 2001). In 1996, anglers in Oregon spent almost \$623 million in economic activity, according to statistics compiled by the American Sportfishing Association. That total applies to various types of recreational fishing, including trout, sturgeon, bass, walleye, halibut and ocean bottomfish. Salmon angling accounts for one-third of that total or more (Oregon State University 1998). According to the Washington Department of Fish and Wildlife, between January 1, 1999, and March 31, 2000, 146,706 salmon

were caught in marine areas, plus an additional 92,607 salmon in freshwater (Manning and Smith 2002).

3.3 SOCIOECONOMICS

The regional economy has experienced considerable change over the last half-century, evolving from a natural resource-based economy to a more diverse economy, with growing technology and services sectors. The major rivers in the analysis area continue to provide a variety of resource uses, including transportation, electric power generation, recreation, and irrigation.

The harvest of anadromous fish has been an important activity, first for Native Americans and later for Euro-Americans. Native American, non-native commercial, and recreational anadromous fishing activities have all experienced declines in harvest levels over the last century. Salmon harvest continues to be important for several Tribes.

The economy of the analysis area consists of the following general components, which comprise gross state products (U.S. Department of Commerce, Bureau of Economic Analysis 2001):

- Agriculture, forestry, and fishing
- Mining
- Construction
- Manufacturing
- Transportation and public utilities
- Wholesale trade
- Retail trade
- Finance, insurance, and real estate
- Services and Tourism
- Government

Until a few decades ago, economic growth in the analysis area was fueled primarily by natural resource-based industries such as agriculture, fishing, mining, and forestry. Inexpensive hydropower was important in attracting energy-intensive industries such as aluminum production to the Pacific Northwest and California. Based on society's needs and values, choices were made to grow crops, raise cattle, build dams, harvest fish, build roads, and harvest timber, among other activities in this region (Lower Columbia River Estuary Program 1999). Many benefits and costs have been associated with this growth and change, some tangible and measurable, others intangible and immeasurable. Numerous communities have gained from the use and management of natural resources on Federal lands, most notably of timber harvest, mining, grazing, recreation, and irrigation activities (Lower Columbia River Estuary Program 1999).

Now, growth in services, government, and technology spur a large part of the economic growth of the analysis area. Many communities are experiencing a shift in economic base. Some are experiencing a decline while others are experiencing growth (Bonneville Power Administration 2001).

To define the magnitude of the economy in the analysis area, the gross state products for all components combined are summarized in Table 3-2. Gross state product for a state is derived as the sum of gross state product originating in all industries in the state. As such, it is often referred to as the state counterpart of the nation's gross domestic product (U.S. Department of Commerce, Bureau of Economic Analysis 2001).

Table 3-2. 1999 gross state product in current dollars (in millions of dollars).

State	GSP (Million \$)
Washington	209,258
Oregon	109,694
Idaho	34,025
California	1,229,098
Total	1,582,075

Source: U.S. Department of Commerce, Bureau of Economic Analysis 2001.

For the nation, the real gross state product grew at an average annual rate of 4.0 percent from 1992 to 1999. Until recently, Oregon and Idaho were among the states with the fastest growth in real gross state product (6.8 percent and 6.6 percent, respectively). California accounted for the largest share of the nation's gross state product, but the rate of growth was only 3.9 percent between 1992 and 1999. This slow growth was attributed to longer-than-average recovery from the 1990-1991 recession and weakness in economic sectors such as Federal government, health services, and finance. Washington's average growth in gross state product (4.7 percent) reflected competing effects. Declines in lumber and wood products, transportation equipment, and printing and publishing sectors were offset by growth in business services, trade, and real estate (U.S. Department of Commerce, Bureau of Economic Analysis 2001).

The impacts of economic changes vary throughout the analysis area. Many rural areas are located away from a developed infrastructure, and they face serious periodic economic downturns, a diminished economic base because of resource depletion, and changes in international markets and technology (Bonneville Power Administration 2001). An example of this is the impact of the declining role of the timber industry in the overall economy on rural communities, such as Sweet Home, Oregon, which is becoming more heavily dependent on

tourism and functioning as a “bedroom community” to metropolitan areas such as Salem, Oregon.

Natural resource extraction, including fishing, agriculture, forestry, and sometimes mining can be considered as a separate industry category. This industry category is generally a small percentage of the total industrial economic base for a region. For instance, in 1992 in California, the Sacramento River region’s total industry output was \$77.9 billion; agriculture, forestry, and fishing activities accounted for \$2.6 billion of this output (approximately three percent of the total output) (CalFed Bay Delta Program 2000). This is also true if industries are categorized by minority-owned business enterprises. The agricultural, forestry, fishing, and mining industry represented only five percent of American Indian- and Alaska Native-owned firms in 1997 (U.S. Census Bureau 2001). Fishing is less important in the economies of urban areas (i.e., Seattle, Spokane, Portland, Boise, San Francisco, and Sacramento) than in rural areas where fewer other industries may exist (National Research Council 1996).

The gross state product in millions of dollars generated by agriculture, forestry, and fishing industries in 1999 in the four states is reported in Table 3-3. The gross state product for these activities comprises two percent of the total gross state product for all four states.

Table 3-3. Gross state product generated by the agriculture, forestry, and fishing industries in 1999 (in millions of dollars).

State	GSP (\$ million)	Total GSP (\$ million)	Percent of Total (%)
Washington	4,355	209,258	2.1
Oregon	2,898	109,694	2.6
Idaho	1,776	34,025	5.2
California	22,779	1,229,098	1.9
Total	\$31,808	\$1,582,075	2.0

Source: U.S. Census Bureau 2001.

Non-Tribal commercial salmon fisheries include ocean troll, Puget Sound seine and gillnet, Washington coastal bays gillnet, and lower Columbia non-Indian gillnet. Most of the parties involved in these fisheries are small entities. In Washington, California, and Oregon, combined, there were 2,840 troll licenses as of 2003 (Review of 2003 Ocean Salmon Fisheries, Pacific Fishery Management Council, Tables D-6, D5, D4). In the Columbia River, there were 588 gillnet licenses as of 2000 (most recent estimate available as reported in latest issue of “Status Report Columbia River Fish Runs and Fisheries, 1938-2000, Washington Department of Fish and Wildlife and Oregon Department of Fish and Wildlife [July 2002]). In Washington, there

were 1,274 purse seine and gillnet licenses and reef net licenses as of 2000 (NMFS Puget Sound Chinook Resource Harvest Management Plan, DEIS, April 2004, Tables D-A-5 and D-A-7). Not all of these licenses are actively fished. In 2003 the total number of vessels reporting landings in all ocean fisheries was 1,120 (Review of 2003 Ocean Salmon Fisheries, Pacific Fishery Management Council).

In 2003, the value of commercial landings of west coast salmon in all fisheries was \$33 million (Report 307, Washington, Oregon, and California; Pacific States Marine Fisheries Commission, Pacific Fishery Information Network <http://www.psmfc.org/pacfin/data/index-woc.html>). Ocean troll harvest accounted for \$20.3 million of that total (Review of 2003 Ocean Salmon Fisheries, Pacific Fishery Management Council, February 2004, Tables D4, D5, and D6). The average ex-vessel value of landings per troll vessel was \$17,567. As noted in subsection 3.2, recreational sport fishing has an economic benefit to those who supply goods and services to the sport fishing industry, which may be as high as \$600 million.

3.4 FEDERAL TREATY AND TRUST RESPONSIBILITIES

American Indians have occupied the analysis area for more than 12,000 years, but in the last two centuries traditional Tribal cultures and land uses have undergone significant displacement. The steady growth of Euroamerican populations has caused conflicts over resource use and availability, as well as pressures to change Indian cultures. The competition and conflict between native and Euroamerican people in the 1800s resulted in a treaty-making period between Tribes and the United States government through the mid to late nineteenth century.

These treaties were agreements between sovereign nations, through which the United States government recognized Tribes as political entities. In the treaties, most Tribes ceded lands in exchange for set-asides, exclusive-use reservations, services, and promises of access to traditional uses such as hunting, fishing, gathering, and livestock grazing. In exchange for cessation of Indian claims to land, the Federal government assumed trust obligations on behalf of the Tribes to protect Tribal assets and pre-existing rights allowing Indians to fish at usual and accustomed areas, and to hunt, gather, and graze livestock on open and unclaimed lands (U.S. Army Corps of Engineers 1999). In addition, presidential executive orders were signed in the late 1800s and early 1900s to reserve lands for Tribal use, identify certain services, and identify rights for non-treaty Tribes. In 1998 and 2000, former President Clinton signed Executive Orders on Tribal Consultation and Federalism. Both orders were designed to strengthen the government-to-government relationship with Indian Tribes and to ensure that all executive departments and agencies consult with Tribes as they develop policy on issues that impact Indian communities.

There have been judicial interpretations of Tribal rights and treaty language defining federal legal responsibilities. For example, a 1994 court decision involving shellfishing rights determined that treaty-reserved resources were not limited to those actually harvested at treaty time because the right to take any species, without limit, pre-existed the treaties (*United States v. Washington*). Congress also adopted laws and policies that protect Tribes' rights to self-determination and promote the social well-being of Tribes and their members. Therefore, under various laws and policies federal agencies have a responsibility to implement federal resource laws in a manner consistent with Tribes' abilities to protect their members, to manage their own resources, and to maintain themselves as distinct cultural and political entities.

Today's Tribal cultural, social, economic, religious, governmental interests, and treaty-reserved rights are dependent on landscape health, terrestrial source habitats, terrestrial and aquatic species, and aquatic resources. Therefore the primary focus of the federal trust responsibility continues to be the protection of such Indian-owned assets, natural resources on reservations, the treaty rights, and interests that were reserved for Tribes on off-reservation lands.

For their part, Tribal governments have broad social and natural resource responsibilities toward their memberships and often operate under different cultural and organizational intents than federal or state agencies. Tribes have interests in reservations, Indian allotments and certain off-reservation lands. However, the nature of such interests and legal rights varies. For example, some Tribes have a legal right to fish at all usual and accustomed places specified in treaties, for both on and off reservation lands, regardless of property ownership.

Some Tribes have established inter-Tribal commissions to comprehensively manage resource activities. The Northwest Indian Fisheries Commission and the Columbia River Inter-Tribal Fish Commission are involved in fisheries management, artificial propagation of salmon programs and salmon restoration plans. These Commissions provide technical assistance and disseminate information for their member Tribes. They do not, however, directly represent individual Tribal Governments.

Salmon species are also an important cultural resource in the analysis area, dating from before the earliest period of human occupation. Over 8,000 years ago, people in the general area are believed to have foraged for a wide variety of food resources located in different topographic zones, but particularly salmon. Since then salmon continue to be of cultural, economic, recreational, and symbolic importance.

Populations of salmon have been substantially depleted in the last two centuries to approximately 40 percent of their historical range. The decline in fish populations affects fishery-related cultures and their social value structures. Salmon have provided social continuity and heritage for many Americans, Native American Tribes, and non-Tribal fishing communities that depend on salmon fishing (National Research Council 1996). Sport fishers, subsistence fishers, and commercial fishers, through their knowledge of historic fishing spots, fishing stories, and ways of fishing, pass on fishing customs.

The social values of fishery-related cultures include the values of salmon for subsistence and nutritional health, their values for recreation and tourism, and their spiritual values in Native American life and ceremony. Moreover, there are important symbolic links between ethnic, community, and regional identities and salmon. Salmon are featured in art and song specifically in the Pacific Northwest to an extent shared by few other fishes anywhere (Holm 1965).

3.5 ENVIRONMENTAL JUSTICE

Executive Order 12898, signed February 11, 1994, requires each federal agency to do the following:

. . . make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or

environmental effects of its programs, policies, and activities on minority populations and low-income populations (U.S. Environmental Protection Agency [EPA] 1998).

The presidential memorandum to all federal agencies accompanying the Executive Order established that the United States EPA, “when reviewing environmental effects of the proposed action of other Federal agencies under section 309 of the Clean Air Act, 42 U.S.C. section 7609, shall ensure that the involved agency has fully analyzed environmental effects on minority communities and low-income communities, including human health, social and economic effects.” To assist other federal agencies to fully comply with this Executive Order, EPA has prepared guidance for conducting Environmental Justice analyses.

The EPA, working with the Enforcement Subcommittee of the National Environmental Justice Advisory Council has developed technical guidance for conducting environmental justice assessments, in order to achieve consistency between analyses. That 1998 guidance provides the basis for the assessment presented here.

An environmental justice analysis is intended to determine potential human health or environmental effects that could have significant and disproportionate adverse effects on low-income and/or minority populations potentially impacted by proposed federal actions. The Environmental Justice analysis should also determine whether such populations or communities have been sufficiently involved in the decision making process.

In the analysis area there are minority and low-income populations that this Executive Order could apply to, including Native American Indian Tribes, and Hispanics. Hispanic populations traditionally were found in agricultural areas drawn by jobs on farms and in food processing plants. More and more first and second generation Hispanics now live and work in urban areas, where there are increasing employment and business opportunities.

Many of the Tribes in the analysis area share the history of a culture and subsistence economy based on salmon. The decline of salmon has altered traditional Tribal economies, and reduced wealth, health, and well-being. The socioeconomic conditions for Tribal members in particular are not on par with their non-Indian neighbors (Bonneville Power Administration 2001). Low-income fishing communities have also felt the effects of the decline in salmon, though it is estimated to be to a lesser extent than effects on Native Americans (Bonneville Power Administration 2001).

3.6 WATER QUALITY

Water quality is a critical component of aquatic and riparian habitats. Many of the human activities that adversely affect water quantity also degrade water quality. Impoundments, stream

bank and channel alterations, and disturbances of natural flow regimes can all affect water quality, as can the practice of using surface waters as the recipient for municipal, industrial, and agricultural wastewaters.

Water arrives in a watershed as rain or snow. As it flows downstream, it develops certain physical and chemical characteristics that are derived from the characteristics of the watershed. These characteristics often vary daily and seasonally. Aquatic life has evolved to take advantage of the characteristics of water in rivers, streams, and lakes. Most aquatic life is adapted to a range of water quality conditions. Human activities in a watershed may alter the quality of water in rivers and streams and if quality characteristics deviate from the natural range then aquatic life may be harmed (Iwamoto *et al.* 1978; Bjornn and Reiser 1991).

The physical and chemical characteristics of water determine its suitability for different purposes. Various state and federal agencies have developed water quality criteria that define the physical and chemical characteristics of water that is suitable for a particular purpose or beneficial use. For example, criteria have been established for waters that are suitable for domestic water supply, agricultural water supply, and sustenance of aquatic life in most states (California State Water Resources Control Board 1963; U.S. EPA 1976). The most widely used water quality criteria are those published by EPA. They are updated and periodically refined, as research results become known (U.S. EPA 1986).

3.6.1 *Water Quality Regulations*

In 1972, responding to public concern about deteriorating water quality, Congress passed the Federal Water Pollution Control Amendments, later referred to as the Clean Water Act. The Clean Water Act established a nationwide strategy for abating water pollution. States were required to set ambient water quality standards that would protect the beneficial uses of the waters of the United States, including their use by fish and wildlife. Tribal Governments have independent authority for setting water quality standards and implementing regulations for waters on reservation land under the Clean Water Act.

A national permitting program was established (the National Pollutant Discharge Elimination System) to control the discharge of pollutants to the degree necessary to meet ambient water quality standards. Initially, the permitting program was focused on point sources of pollution; that is, sources which discharge pollutants at a single identifiable point, for example municipal wastewater treatment plants. In 1987, the Clean Water Act was amended to include urban storm water runoff, a diffuse or non-point source of pollutants, in the permitting program.

The Clean Water Act has been successful in that most cases of gross water pollution were eliminated within 25 years of passage of the Act. However, many more subtle water quality

problems remain, and complete compliance with ambient water quality standards has not been achieved (Patrick 1992; Natural Resources Defense Council 1993).

Periodically, states must prepare a list of waterbodies that fail to meet ambient water quality standards and submit it to the United States Environmental Protection Agency. The list is known as the 303(d) list. The states must then prepare plans to correct violations of ambient water quality standards. States must determine the reduction in discharge of pollutants necessary to enable compliance with ambient standards. The reductions in pollutant discharge are distributed amongst polluters and expressed as total maximum daily loads.

Water quality standards are in place in all states in the analysis area. But many waterbodies in the analysis area are not in compliance with all applicable ambient water quality standards analysis (Table 3-4). For example, the Columbia River in the vicinity of Longview, Washington is out of compliance for dissolved oxygen, fecal coliform, temperature, PCBs, and total dissolved gases, and the Klamath River in northern California, up to the Oregon border, is out of compliance for dissolved oxygen, nutrients, and temperature. Plans to correct the many violations of ambient standards are at an early stage in their development. Total maximum daily loads have been established for only a small proportion of the waterbodies that are not in compliance with ambient standards.

Table 3-4. Stream miles out of compliance with water quality standards.¹

	Stream Miles Listed for Selected Parameters				Total Listed Stream Miles
	Sediment	Nutrients	Pathogens	Toxics	
Washington	18	1	393	134	546
Oregon	1,446	598	2,565	1,426	6,035
Idaho	6,228	2,653	1,539	742	11,162
California	5,823	1,119	725	6,051	13,718

¹ Represents entire state data, and is not specific to boundaries within the ESUs comprising the analysis area.

Source: Atlas of America's Polluted Waters, U.S. EPA, 2000.

3.6.2 *Water Quality Parameters*

3.6.2.1 Temperature

Water temperature influences all aspects of salmonid physiology, behavior, and ecology. Temperatures approaching or exceeding the physiologically tolerable range can cause direct mortality or acute stress in salmonids. In addition, relatively small increases in stream temperature at any time of year can adversely affect salmonids by changing metabolic requirements, behavior, rate of development of embryos and alevins, migration timing, competitive interactions, predator-prey interactions, disease-host relationships, and other important ecological functions (Monan *et al.* 1975; Bjornn and Reiser 1991; Groot 1982).

Water temperature also indirectly affects salmon survival. Foraging rates of piscivorous fish are directly related to temperature (Vigg and Burley 1991), and the rates of infectivity and mortality of several diseases are known to be directly related to temperature (NMFS 1998).

Freshwater temperature is critical for the survival of salmonids in early life stages. Embryo survival and fry emergence depend upon appropriate water temperatures (less than 57°F for most species) (Spence *et al.* 1996). Also, freshwater temperatures experienced by out-migrating juvenile salmon have been shown to affect survival (Monan *et al.* 1975; Bjornn and Reiser 1991; Groot 1982). Immigrating adults can be delayed by excessively warm water temperatures (NMFS 1998). Delay can reduce the ability of adult fish to survive to spawning, as well as vigor and fecundity during spawning (NMFS 1998).

Water temperatures exceed ambient water quality standards in many streams in the analysis area during the summer months (Washington Department of Ecology 2000). Primary causes are flow depletion as a result of diversion for irrigation and municipal water supply, impoundments, and loss of shading provided by riparian vegetation due to changes in land use such as urbanization.

3.6.2.2 Sediment

Excessive erosion caused by human activities can harm salmonids and macro-invertebrates (National Research Council 1996). Suspended sediment, or the portion of the sediment load suspended in the water column, is of particular concern for its ability to adversely impact aquatic populations (Hicks *et al.* 1991). Particulate materials can physically abrade and mechanically disrupt respiratory structures (e.g., fish gills) or surfaces (e.g., respiratory epithelia of benthic macroinvertebrates) in aquatic vertebrates and invertebrates (Rand and Petrocelli 1985). In addition, sediment loading can impact listed species of salmonids by causing local fluctuations of pool size and/or perturbations in streambed compositions (Lloyd *et al.* 1987; Hicks *et al.* 1991; Lake and Hinch 1999), and impair foraging efficiency and disrupt social behavior (National Research Council 1996). Stream sediment inputs could also have beneficial effects for salmonids, however, if coarse sediments are introduced by glacial-lacustrine deposits or high flow events causing mass wasting or slumping that increase the suitability of streambed structure for salmonids (National Research Council 1996).

3.6.2.3 Dissolved Oxygen

Dissolved oxygen refers to the concentration of oxygen dissolved in water. Adequate dissolved oxygen concentrations are important for supporting fish, invertebrates, and other aquatic life. Salmon and steelhead are particularly sensitive to reduced dissolved oxygen.

Salmonids require high levels of dissolved oxygen throughout most of their life stages with early life stages being most sensitive to reduced dissolved oxygen levels (Spence *et al.* 1996).

Dissolved oxygen may be lowered in streams and rivers as a result of industrial and municipal discharges, nutrient-induced algal blooms, temperature increases, and increased siltation, which hinders exchange of water between surface and intragravel waters. Low dissolved oxygen levels influence developing eggs and alevins in a number of ways including reduced survival, retarded or abnormal development, delays in time to hatching and emergence, and reduced size of fry (Spence *et al.* 1996). In juveniles and adults, low dissolved oxygen impairs swimming performance, reduces growth, and inhibits migration (Pacific Fishery Management Council 1999; Brett 1971; Warren 1971; Moyle and Cech 1982).

All states in the analysis area have established dissolved oxygen standards designed to protect cold water fish, including salmonids. Compliance with ambient standards for dissolved oxygen is most problematic in the summer months in streams diminished by agricultural water diversions and unprotected by riparian vegetation.

3.6.2.4 Pollutants

In addition to temperature, dissolved oxygen, and sediment, salmonids can also be adversely affected by a variety of toxic pollutants (National Research Council 1996). These contaminants can enter streams as chronic inputs, such as industrial effluent or runoff from agricultural and mining areas, or as episodic inputs, such as chemical spills during transportation or failure of containment structures. Effects vary depending upon the chemicals, exposure, and interactions with other chemicals, but can range from direct mortality and behavioral or morphological abnormalities to bioaccumulation of substances in tissues, making fish unsafe for human consumption (National Research Council 1996).

4. ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This Environmental Consequences Chapter is organized according to the section headings in Chapter 2, Alternatives. The two alternatives have been analyzed for all ESUs, rather than being site-specific. Most environmental resources would not be impacted by either alternative and so were not considered in the assessment of potential broad effects. These include public health and safety, land use, geology and soils, air quality, vegetation, wildlife, archeological resources, and aesthetics. Other resources were generally analyzed by describing possible outcomes across all ESUs, and fish, recreation, socioeconomics, federal trust and treaty responsibilities to Tribal communities, environmental justice, and water quality.

4.2 ALTERNATIVE 1 (NO ACTION)

Alternative 1, the No Action alternative, would consist of all previously enacted 4(d) rules remaining in place, with no additions or amendments. In the context of the (non-discretionary) listing determinations, the No Action alternative would result in the lack of take prohibitions for one ESU currently listed as endangered but being proposed as threatened (the Upper Columbia River *O. mykiss* ESU). The Lower Columbia River Coho ESU, which is newly proposed for a threatened listing, similarly would not be protected by any take prohibition. The remaining ESUs currently listed as threatened would continue to be covered by the section 9(a) take prohibitions as well as the applicable limits. Under the No Action alternative the take of all listed hatchery fish and resident *O. mykiss* newly being proposed for listing would be prohibited.

4.2.1 *No Take Prohibitions for Two ESUs Being Listed as, or Proposed as, Threatened*

4.2.1.1 Fish (ESUs)

Under this alternative, there would be no take prohibitions for the Upper Columbia River *O. mykiss* and Lower Columbia River Coho ESUs. These ESUs would not be protected by the section 9(a) take prohibitions or any limits thereof. These ESUs, without take prohibitions, are vulnerable to harm from a range of actions including harvest, hatchery operations, and habitat-modifying actions. If take of these fish is not prohibited, they would remain at substantial risk of further decline in abundance.

4.2.1.2 Recreation, Commercial Fishing, and Socioeconomics

There could be some positive short-term benefits to commercial and recreational fishing industries and to those communities that support these activities since the stocks would not be protected under the ESA and therefore could provide more fish for harvest. However, in the long term, salmonid populations would likely continue to severely decline in abundance, productivity, spatial structure, and diversity resulting in a permanent and substantial harm to the fishing industry. Impacts on localized fishing industries would include commercial losses and tourism-related losses from fishing licenses and supporting services.

Regional economic impacts would be minor as a result of salmonid population declines since natural resource extraction, including fishing, agriculture, forestry, and sometimes mining is generally a small percentage of the total industrial economic base for a region (subsection 3.3, Socioeconomics).

4.2.1.3 Federal Treaty and Trust Responsibilities

Economic impacts on Tribal communities would be the same as those on fishing-dependent communities as described above, but the decline of salmon resources would also have a substantial adverse cultural effect on various Tribes. Furthermore, it is unlikely that Federal trust responsibilities to Tribes could be met once ESUs decline and fish are not available for subsistence or ceremonial harvest.

4.2.1.4 Environmental Justice

In the long term, minority and low income communities would not be disproportionately impacted under the No Action alternative relative to other communities since the adverse effect of declined salmonid resources would be equally realized by all economic sectors dependent on this resource. However, short term adverse effects could occur to low income communities centered on the fishing industry.

4.2.1.5 Water Quality

Impacts to water quality parameters, such as sediment loading and dissolved oxygen levels, could be localized, but adverse in the short-term if fishing activities were to increase and could include bank erosion for boater access, accidental oil or gas spills from fishing vessels, and general gas emissions into waterbodies from boat use. These impacts would be minimized by compliance with state water quality regulations. However, in the long term, these impacts would be minor or non-existent if the decline in salmonid populations resulted in little or no fishing activities. No changes in water temperatures are anticipated as a result of the No Action Alternative.

4.2.2 *Continued Application of Inconsistent Sets of Take Limits Applied to Threatened ESUs*

4.2.2.1 All Resources

Presently there are inconsistent sets of limits on the take prohibitions that apply to threatened ESUs. For example, for the Snake River spring/summer-run and fall-run chinook ESUs take is prohibited, and there are few applicable limits. NMFS may permit take of these listed fish, but principally only through a section 10 permit or a section 7 consultation. For these ESUs there is currently no clear mechanism for allowing fishery harvest directed at listed fish (for example, listed spring/summer-run chinook of hatchery origin in excess of broodstock and natural escapement needs). In contrast, take is prohibited for the Snake River Basin *O. mykiss* ESU, but it is covered by 13 of the 14 limits promulgated in 2000. Although NMFS may permit take through a variety of methods (e.g., through sections 7, 10, or 4(d)), the 4(d) approval process has proved to be the more efficient and flexible approach. In areas where inconsistent sets of 4(d) limits apply to threatened ESUs, harvest and hatchery managers must use different regulatory approaches when they seek take authorization. While it is possible to work within such a complex system, a more simplified system consisting of a single set of protective regulations would be less constraining, decrease public confusion, and diminish the regulatory burden associated with obtaining take authorization. For example, the 2000 4(d) limit for scientific research activities (50 CFR 223.203(b)(7)) has substantially streamlined the research permit application and review process. Where it applies consistently among ESUs in Oregon and California, it has allowed managers and researchers to generate numerous permits in the same timeframe once taken to process a few dozen permits under other methods. Further, because data for all permits are kept in a centralized database, it provides managers the ability to more readily evaluate the cumulative impact of research related activities and thereby utilize this information to assist with protections for listed fish to an even greater degree than was possible before the advent of the 2000 4(d) rule.

The No Action alternative would retain all previously adopted 4(d) rules and, therefore, the inconsistencies in limit applications. This would have no effect on the current management of the species and no environmental consequences to any resource.

4.2.3 *New Prohibition on Take of Hatchery Fish and Resident Rainbow Trout (*O. mykiss*)*

4.2.3.1 Fish (ESUs)

Under the No Action alternative, the take of hatchery fish and resident rainbow trout proposed for listing would be prohibited. The effects of this prohibition would mean that management of hatchery fish consistent with the conservation of threatened ESUs would be constrained.

Without amended 4(d) protective regulations, the hatchery fish included in the final listing determinations would not be available for commercial, recreational, or tribal fisheries. Without harvest, naturally spawning hatchery fish would displace, compete with, or interbreed with wild fish. The adverse consequences on naturally spawned populations of hatchery fish that stray and spawn in the wild have been described in scientific literature (Brannon *et al.* 1999; ISAB 2003; IMST 2001; ISAB 2001; HSRG 2000; NRC 1995). In some locations, trapping or handling facilities allow managers to control access of hatchery-origin fish to natural spawning areas, but many natural spawning areas are not located above such facilities, and access by hatchery-origin fish is unrestricted. In addition, without adequate harvest, the number of fish returning to a given hatchery would likely exceed intended production levels and facility capacity, necessitating a restructuring of hatchery program goals and/or design at substantial financial cost, or listed hatchery fish may need to be destroyed.

4.2.3.2 Recreation, Commercial Fishing, and Socioeconomics

Prohibition of take for hatchery fish would substantially curtail recreational and commercial fishing opportunities, at least in the short term. In the short term, impacts on fishing communities and the fishing industry would likely be severe, including impacts on low income communities dependent upon the fishing industry.

Prohibiting take of rainbow trout in certain local areas would have substantial adverse impacts on recreational fisheries and the economic interests supported by these fisheries. It is uncertain what other environmental consequences may occur if take of rainbow trout is prohibited since there is very little information about the distribution and status of most rainbow trout (Kostow 2003).

Regional economic impacts would be minor as a result of protecting newly listed hatchery fish and rainbow trout since natural resource extraction, including fishing, agriculture, forestry, and sometimes mining is generally a small percentage of the total industrial economic base for a region (subsection 3.3, Socioeconomics).

4.2.3.3 Federal Treaty and Trust Responsibilities

The new prohibition on the take of hatchery fish and resident rainbow trout (*O. mykiss*) would have a substantial adverse effect on Tribal communities that operate hatcheries and utilize hatchery-reared fish for economic and cultural benefits. In the longer term it might be possible to obtain approvals for fisheries in those ESUs that are subject to the 2000 and 2002 4(d) limits, which would likely mitigate these adverse effects over the longer term. Some Tribal governments that manage rainbow trout (*O. mykiss*) sport fisheries on their reservations may also be economically affected.

4.2.3.4 Environmental Justice

In the long term, minority and low income communities would not be disproportionately impacted under the No Action alternative relative to other communities since the adverse effect of protecting newly listed hatchery fish and rainbow trout would be equally realized by all economic sectors dependent on this resource. However, short term adverse effects could occur to low income communities centered on the fishing industry until approvals for fisheries, at least on those ESUs that are subject to the 2000 and 2002 4(d) limits, may occur, which would mitigate the adverse effects over the long term.

4.2.3.5 Water Quality

Indirect effects could include adverse water quality/dissolved oxygen impacts related to an abundance of fish carcasses in various streams. However, sediment and dissolved oxygen impacts normally associated with commercial and recreational fishing, such as bank disturbance and oil and gas emissions from vessels, would be decreased since these activities would decline. No impacts to water temperatures would be expected under the No Action alternative.

4.3 **ALTERNATIVE 2 (PROPOSED ACTION)**

4.3.1 *Apply 4(d) Protections and 14 Limits Promulgated in 2000 for One ESUs Currently Listed as Endangered, but being Proposed for Threatened Status (Upper Columbia River O. mykiss ESU).*

4.3.1.1 Fish (ESUs)

Under the Proposed Action, take prohibitions would be in effect for one ESU currently listed as endangered, but proposed for threatened status (the Upper Columbia River *O. mykiss* ESU). In comparison to the No Action alternative where take prohibitions for this ESU would not be in place, NMFS could provide for the conservation of this ESU by using the flexibility of Section 4(d) to prohibit take only to the extent needed for conservation. Unlike the No Action alternative, it is anticipated that take prohibitions under the Proposed Action would help to prevent further decline of this ESU by preventing take of this species from activities that harm fish and fish habitat.

Furthermore, including all currently listed ESUs under a single set of limits in the 4(d) rule would make regulation of activities affecting this ESU more consistent than under the No Action alternative.

4.3.1.2 Recreation, Commercial Fishing, and Socioeconomics

Compared to the No Action alternative, take prohibitions for this ESU would provide more regulatory flexibility for recreation and commercial harvest activities and, therefore, increased opportunities for these activities to continue. Because salmonid populations would be expected

to improve over the long term under the Proposed Action as compared to the No Action alternative, impacts to the fishing industry would be expected to remain similar to current conditions in the short term, and to improve in the long term. Potential commercial and tourism-related losses resulting from declined salmonid populations would be minimized under the Proposed Action because of the regulatory flexibility in managing these resources, and there would likely be beneficial impacts to these industries in the long term.

As under the No Action alternative, regional economic impacts would be minor as a result of the Proposed Action since natural resource extraction, including fishing, agriculture, forestry, and sometimes mining is generally a small percentage of the total industrial economic base for a region (subsection 3.3, Socioeconomics).

4.3.1.3 Federal Treaty and Trust Responsibilities

Under the Proposed Action, economic impacts on Tribal communities would be similar to those on fishing-dependent communities as described above. Unlike the No Action alternative, the conservation of this ESU with regulatory flexibility would be a beneficial impact on Tribes dependent on these salmonid resources for economic and cultural benefits because there would likely be more opportunities for Tribal fisheries activities to occur and with more regulatory certainty. Federal trust responsibilities to Tribes would be more certain under the Proposed Action than under the No Action alternative because of more flexible resource management options available to Tribes.

4.3.1.4 Environmental Justice

As under the No Action alternative, minority and low income communities would not be disproportionately impacted under the Proposed Action relative to other communities since the effects from conservation management of this ESU would be equally realized by all economic sectors dependent on this resource. However, low income communities centered on the fishing industry may realize beneficial effects resulting from regulatory flexibility of commercial and recreational harvesting as compared to the No Action alternative.

4.3.1.5 Water Quality

Unlike the No Action alternative where short-term adverse water quality impacts would increase due to lack of take prohibitions, short term adverse water quality impacts resulting from fishing activities would be minimized due to regulatory constraints on the fishing industry under the Proposed Action. Impacts on water quality parameters, such as sediment loading and dissolved oxygen levels, could be localized, but less than the level of impact expected under the No Action alternative if fishing were unregulated. Impacts could include bank erosion for boater access,

accidental oil or gas spills from fishing vessels, and general gas emissions into water bodies from boat use.

In the long term, there could be greater impacts on water quality under the Proposed Action than under the No Action if salmonid populations improve. Fishing activities would continue for a longer period under the Proposed Action than would likely occur under the No Action scenario if populations continued to decline. However, it is not anticipated that these impacts would be substantial since fishing would be regulated and controlled by the limit criteria and state water quality regulations.

Like the No Action alternative, there would be no changes to water temperatures as a result of the Proposed Action.

4.3.2 Apply 4(d) Protections to One ESU Newly Listed as Threatened (Lower Columbia River Coho ESU) with the Same Set of 14 Limits Promulgated in 2000

4.3.2.1 Fish (ESUs)

The effect of applying amended 4(d) protective regulations to the Lower Columbia River coho ESU, as part of the Proposed Action alternative, would be to increase regulation by prohibiting take of natural fish that would not be protected by NMFS under the No Action alternative. However, this increase would likely be minor as Lower Columbia coho salmon are currently regulated by the State of Oregon, which has listed them under the State's endangered species act. Furthermore, Lower Columbia River coho occur in streams already protected due to the presence of listed chum, chinook, and steelhead ESUs. Naturally spawned Lower Columbia River coho would benefit from the take prohibitions and regulatory flexibility provided by the amended 4(d) protective regulations under the Proposed Action alternative. Hatchery fish make up the vast majority of (the few) returning natural spawners in this ESU. The Proposed Action alternative, by not applying the take prohibitions to ESU hatchery fish, maintains the ability of NMFS and co-managers to effectively manage and minimize potential adverse impacts of abundant returns of hatchery fish, consistent with the conservation needs of the ESU.

4.3.2.2 Recreation, Commercial Fishing, and Socioeconomics

Currently, the hatchery programs within the Lower Columbia ESU produce large numbers of 100 percent adipose-fin-clipped fish intended to provide substantial harvest opportunities. Under the No Action alternative, no take prohibitions would apply to ESU hatchery fish, resulting in minimal impacts to recreational, commercial, and tribal harvest opportunities. Similarly, impacts under the Proposed Action alternative would be minor, as take prohibitions would not apply to adipose-fin clipped ESU hatchery fish.

4.3.2.3 Federal Treaty and Trust Responsibilities

The historical boundary of the Lower Columbia River Coho ESU includes some tributaries above Bonneville Dam (which is the downstream boundary of the Columbia River treaty tribes' current-day fisheries, but not necessarily the boundary of their historical usual and accustomed fishing area). Though the indigenous coho have been largely (if not entirely) extirpated from these streams, prohibiting take of listed Lower Columbia River Coho could affect Tribal recovery and reintroduction efforts and ultimately Tribal fisheries. In addition, in recent years hatchery fish from this ESU have been released above Bonneville Dam with and without adipose fin clips. NMFS anticipates that applying the take limit for Tribal resource management plans to this ESU would allow the Federal agency to accommodate Tribal efforts to reintroduce coho to historical areas.

4.3.2.4 Environmental Justice

Under both the No Action and Proposed Action alternatives, minority and low income communities would not be disproportionately impacted relative to other communities. Any minor effects from conservation management of this ESU would be equally realized by all economic sectors dependent on this resource. Moreover, since the take of within-ESU hatchery fish would not be prohibited under either alternative, low income communities dependent on this resource would not experience appreciable economic impacts under either approach.

4.3.2.5 Water Quality

Impacts to water quality parameters such as sediment loading and dissolved oxygen could be greater under the Proposed Action than under the No Action alternative because take of hatchery fish would not be prohibited from activities such as fishing. Impacts could include bank erosion for boater access, accidental oil or gas spills from fishing vessels, and general gas emissions into water bodies from boat use. However, it is not anticipated that these impacts would be substantial since fishing would be regulated and controlled through the limit criteria and state water quality regulations.

Like the No Action alternative, there would be no changes to water temperatures as a result of the Proposed Action.

4.3.3 *Apply the Same Set of Limits to all Threatened ESUs by Bringing the Snake River Fall-run Chinook, Snake River Spring/Summer-run Chinook, Southern Oregon/Northern California Coast Coho, Central Valley Spring-run Chinook, California Coastal Chinook, and Northern California O. mykiss ESUs under the 13 Limits Promulgated in 2000*

4.3.3.1 All Resources

Unlike the No Action alternative, fishery managers could utilize a single efficient regulatory system if all 14 limits were applied consistently to all threatened ESUs. While this change would result in efficiencies for managers, it is unlikely to have an impact on the affected resources. Activities permitted under the No Action alternative would be permitted under the Proposed Action, but through a more efficient process. No environmental consequences would occur to any resource under the Proposed Action.

4.3.4 *Amend the Expired 4(d) Limit to Allow Take for Ongoing Research for a Limited Period (§223.203(b)(2)).*

4.3.4.1 All Resources

There would be no resource impact under the No Action alternative if this limit were not removed from the 4(d) rule since it has expired and has no on-the-ground effect. Similarly, there would be no effect to any resource by the Proposed Action alternative since it would provide an exemption for research activities with pending permit applications that may be permitted by other regulatory options (e.g., section 7, 10, or other 4(d) limits) under the No Action alternative.

4.3.5 *Move the Description of the Limit for Tribal Resource Management Plans (§223.209) so that the Text would Appear next to the 4(d) Rule in the Code of Federal Regulations, Improving the Clarity of the 4(d) Regulations*

4.3.5.1 All Resources

There would be no effect on any resource by this administrative action since the limit would not be changed in any way. Similarly, there would be no resource impact under the No Action alternative if the text for this limit were not moved since the limit would remain in effect regardless of its descriptive location within the rule.

4.3.6 *Amend the Current 4(d) Rule so that Take is Prohibited Only for Anadromous Fish with an Intact Adipose Fin (that is, take prohibitions apply only to the extent necessary and advisable for the conservation of the listed species).*

4.3.6.1 Fish (ESUs)

Under the Proposed Action alternative, the regulatory effect of not applying the Section 9(a) take prohibitions to adipose-fin-clipped hatchery fish and resident *O. mykiss* is that take would be allowed. Allowing take of clipped hatchery fish would provide necessary management flexibility to control the number and proportion of hatchery fish spawning in the wild, which would reduce the adverse impacts of hatchery fish on natural populations expected under the No Action alternative (subsection 4.1.1.3, No Action, New Prohibitions on Take of Hatchery Fish). Potential adverse consequences of applying take prohibitions to clipped hatchery fish under the No Action alternative include competition, disease transmission, and genetic introgression with

natural populations (NWPCC 2003; ISAB 2003; IMST 2001; ISAB 2001; HSRG 2000; NRC 1995).

Allowing take of resident rainbow trout under the Proposed Action alternative would have unknown biological effects. At this time, NMFS does not have sufficient information to determine that the take of resident rainbow trout is “necessary and advisable for the conservation” of the ESUs proposed for listing (NWPCC 2003). Little or no population data are available for most resident *O. mykiss* populations, greatly complicating assessments of the contribution of resident fish to ESU viability, as well as evaluations of the necessary and advisable protections for conserving *O. mykiss* ESUs. Where available, NMFS has incorporated information about resident populations into extinction risk analyses (NMFS 2003b; 69 FR 33102; June 14, 2004), and NMFS has noted that the presence of relatively numerous resident populations can reduce risk to ESU abundance. However, there is considerable scientific uncertainty as to how the resident form affects extinction risk through its influence on ESU productivity, spatial structure, and diversity. Despite the reduced risk to abundance for certain *O. mykiss* ESUs due to numerically abundant residents, the collective contribution of the resident life-history form to the viability of an ESU in-total is unknown (NMFS 2004a), as is the value of extending take prohibitions to resident fish. Based on present scientific understanding, there is insufficient information to evaluate the contribution of resident fish to ESU viability, or to determine whether extending protections to rainbow trout would contribute to the conservation and recovery of *O. mykiss* ESUs.

4.3.6.2 Recreation, Commercial Fishing, and Socioeconomics

Compared to the No Action alternative, the Proposed Action would provide substantial beneficial effects on commercial and recreational harvest industries and the communities dependent on these resources. Unlike the No Action alternative, which would severely limit the availability of hatchery-reared fish for commercial use, the Proposed Action would continue to allow these activities by providing regulatory mechanisms for this take.

Allowing take of rainbow trout would have a continued beneficial impact on recreational fisheries and the economic interests supported by these fisheries as compared to any adverse effects expected under the No Action alternative. It is uncertain what other environmental consequences may occur if take of rainbow trout is allowed since there is very little information about the distribution and status of most rainbow trout (Kostow 2003).

Regional economic impacts would be minor as a result of allowing take of hatchery fish since natural extractions, including fishing, is generally a small percentage of the total industrial economic base for a region (subsection 3.3, Socioeconomics).

4.3.6.3 Federal Treaty and Trust Responsibilities

Effects on Tribal communities that operate hatcheries and utilize hatchery-reared fish for economic and cultural purposes would be substantially beneficial under the Proposed Action compared to conditions under the No Action alternative since take of hatchery fish would be allowed. While it may be possible for Tribes to obtain approvals for fisheries in those ESUs subject to the 2000 and 2002 4(d) limits under the No Action alternative, the Proposed Action would eliminate the need for additional process steps by the Tribes when managing hatchery fish from their programs.

4.3.6.4 Environmental Justice

Minority and low income communities would not be disproportionately impacted under the Proposed Action alternative relative to other communities since the beneficial effect of allowing take of hatchery fish would be equally realized by all economic sectors dependent on this resource. However, unlike conditions under the No Action alternative, low income communities centered on the fishing industry would substantially benefit from allowable take of hatchery fish under the Proposed Action since more fish would be available for economic benefit.

4.3.6.5 Water Quality

Allowing take of hatchery fish under the Proposed Action would prevent adverse dissolved oxygen impacts related to an abundance of fish carcasses in various streams expected under the No Action alternative from unharvested fish returning to hatcheries.

Increased sediment loading could occur under the Proposed Action as compared to the No Action alternative because take of hatchery fish would not be prohibited from activities such as fishing. Impacts could include bank erosion for boater access, accidental oil or gas spills from fishing vessels, and general gas emissions into water bodies from boat use. However, it is not anticipated that these impacts would be substantial since fishing would be regulated and controlled through state water quality regulations.

As under the No Action alternative, there would be no changes to water temperatures as a result of the Proposed Action.

4.4 CUMULATIVE EFFECTS

Other federal, Tribal, and state actions are expected to occur that would affect the fish populations within the ESUs considered under the Proposed Action alternative. State and Tribal

fisheries occur in the Washington, Oregon, Idaho, and California ESUs. Land management and water use decisions that affect these populations are made in each of these areas. There are overarching concerns and legal mandates for the recovery of listed salmonid populations in the ESUs; at the same time there are social and cultural needs for sustainable fisheries and sustainable economic use of resources.

There are numerous initiatives by state, federal, Tribal, and private entities designed to restore threatened salmonid populations. Federal actions for salmon recovery are currently underway in many of the ESUs. These actions include development of sub-basin plans in support of regional planning and recovery efforts. State initiatives include recently passed legislative measures to facilitate the recovery of listed species and their habitats, as well as the overall health of watersheds and ecosystems. Regional programs are being developed that designate priority watersheds and facilitate development of watershed management plans. Tribes have also developed restoration plans for anadromous fish, for example the Wy-Kan-Ush-Mi Wa-Kish-Wit or Spirit of the Salmon plan in the Columbia River Basin. All of these regional efforts are expected to help increase salmonid populations in the ESUs because of compatible goals and objectives.

The cumulative impacts of NMFS' current Proposed Action are expected to be minor because of reporting and monitoring requirements that would ensure compatibility with other conservation strategies. Within the ESUs, there are expected to be beneficial effects on the biological and human environments associated with the application of scientific fishery management to provide for sustainable benefits. Conservative management is only one element of a large suite of regulations and environmental factors that may influence the overall health of listed salmon populations and their habitat. Monitoring and adaptive management would help ensure that affected ESUs are adequately protected and would help counter-balance any potential adverse cumulative impacts.

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6. FINDING OF NO SIGNIFICANT IMPACT

6.1 SUMMARY

The National Marine Fisheries Service (NMFS) Northwest Region (NWR) has prepared an EA to assess the effect of a series of proposed regulatory changes designed to simplify 4(d) regulations and the permitting process.

These actions would serve the following purposes:

- (1) Provide for the conservation of one previously endangered ESU that is proposed for listing as threatened, and one ESU previously identified as a candidate species that is proposed for listing as threatened, using the flexibility of section 4(d) to prohibit take only to the extent needed for conservation.
- (2) Standardize and simplify the 4(d) protections for all 23 ESUs that are proposed for listing as threatened, in particular, applying the flexibility of section 4(d) to all threatened ESUs to prohibit take only to the extent needed for conservation.
- (3) Provide protection of hatchery fish and resident rainbow trout (*O. mykiss*) that are proposed for listing as threatened only to the extent required for the conservation of the listed ESUs.

Without revision to the current 4(d) rule, two ESUs would not be protected by any prohibitions on take. These ESUs, without take prohibitions, are vulnerable to harm from a range of actions including harvest, hatchery operations, and habitat-modifying actions. If take of these fish is not prohibited, they would remain at substantial risk of further decline in abundance. NMFS has concluded that state and local regulations, voluntary efforts, limitations on federal actions under section 7 of the ESA, and other federal laws are not adequate to provide for conservation of these ESUs. NMFS, therefore, deems it necessary and advisable to adopt regulations prohibiting take of these ESUs, except in certain specified circumstances.

Under the current 4(d) rule, there are exceptions to, or limits on, the take prohibitions for some ESUs, but not for others. Even for ESUs with limits on the take prohibitions, the limits are not uniform. This difference in treatment is confusing for the public and is not tied to conservation needs of the various ESUs.

NMFS proposes to list hatchery fish that were not previously listed. NMFS believes this approach would provide needed flexibility to appropriately manage artificial propagation and direct take of threatened salmon and *O. mykiss* for the conservation and recovery of these ESUs. Not all hatchery stocks considered part of listed ESUs are of equal utility in conservation and

recovery. Certain ESU hatchery stocks may comprise a substantial portion of the genetic diversity remaining in a threatened ESU and are essential for ongoing and future recovery efforts. Other hatchery stocks, although considered part of a threatened ESU, may have limited or uncertain conservation value. In some cases, they may even harm conservation of the ESU. NMFS may have to allow take of listed hatchery stocks to manage the number of hatchery fish allowed to spawn naturally to limit potential adverse effects to spawning natural-origin fish. Without a revision to the current 4(d) rule, take of hatchery fish would be prohibited, except in certain circumstances, upon listing. NMFS has determined that it is neither necessary nor advisable to protect all hatchery fish to the same extent as naturally spawned fish to ensure conservation of the listed ESUs.

NMFS proposes to list resident rainbow trout (*O. mykiss*) that were not previously listed. NMFS believes it does not have sufficient information at this time about the conservation status of rainbow trout to determine that it is necessary and advisable to prohibit their take. Because juvenile steelhead are difficult to distinguish from rainbow trout, the ESA currently requires state fish and wildlife agencies to regulate rainbow trout fisheries to protect listed steelhead. NMFS expects that state regulations would remain in place. Therefore, NMFS has determined that it is neither necessary nor advisable to protect resident rainbow trout (*O. mykiss*) to the same extent as naturally spawned fish to ensure conservation of the listed ESUs.

6.2 ALTERNATIVES CONSIDERED

NMFS considered and analyzed the following alternatives, each of which is discussed in detail in the EA:

Alternative 1 (No Action) — This alternative would consist of no revision to the current 4(d) take prohibitions. The Lower Columbia River Coho ESU, which is newly proposed for a threatened listing, would not be protected by any take prohibition. The Upper Columbia *O. mykiss* ESU, which is proposed to change from endangered to threatened status, would not be protected by any take prohibition. Take of all newly listed hatchery fish and resident *O. mykiss*, on the other hand, would be prohibited, except in those ESUs with no take prohibitions, or in ESUs with current 4(d) take limits, subject to compliance with those limits.

Alternative 2 — This action is the proposed action and would achieve the following:

- (1) Apply the 4(d) protections and 14 limits promulgated in 2000 (as modified in amendments (4) – (6) below) to one ESU currently listed as endangered, but being proposed for threatened status (the Upper Columbia River *O. mykiss* ESU).

- (2) Apply the 4(d) protections and 14 limits promulgated in 2000 (as modified in amendments (4) – (6) below) to the Lower Columbia River coho ESU which is newly proposed for threatened status.
- (3) Apply the 4(d) protections and 14 limits promulgated in 2000 (as modified in amendments (4) – (6) below) to the Snake River fall-run Chinook, Snake River spring/summer-run Chinook, Southern Oregon/Northern California Coast coho, Central Valley spring-run Chinook, California Coastal Chinook, and Northern California *O. mykiss* ESUs, thus bringing all threatened ESUs under the same 4(d) protective regulations.
- (4) Amend the expired 4(d) limit (§223.203(b)(2)), which provided a temporary exemption for ongoing research with pending permit applications during the 2000 4(d) rulemaking, to temporarily exempt ongoing research during the current rulemaking process.
- (5) Move the description of the limit for Tribal Resource Management Plans (§223.209) so that the text would appear next to the 4(d) rule in the Code of Federal Regulations, improving the clarity of the 4(d) regulations.
- (6) Amend the current 4(d) rule so that the section 9(a) take prohibitions apply to anadromous fish with an intact adipose fin only (that is, the take prohibitions and 4(d) protective regulations would not apply to unclipped hatchery fish or resident *O. mykiss* included in the subject ESUs).

In the EA, NMFS considered short and long term effects of the proposed action. Based on the analysis in the EA, NMFS determined the following:

1. Public health and safety would not be affected because the proposed action has no public health and safety implications.
2. The proposed action would have a beneficial effect on the human environment by simplifying the process for allowing activities to proceed consistent with the conservation needs of the listed species.
3. This action does not establish a precedent for future actions with significant effects nor does it represent a decision in principle about a future consideration because the proposed policy changes provide opportunities for management changes, but do not ensure that these changes would occur.
4. This action will largely maintain existing Federal protections for the subject ESUs. Moreover, the final listing determinations would extend these protections for one previously unlisted ESU. Although this action does not directly dictate protections provided by regional, state, local, or other authorities, it is unlikely that these protections

would be reduced, individually or cumulatively. The proposed action is consistent with existing non-Federal policies, laws, and regulations aimed at improved salmonid and other listed species protections and conservation.

5. The effects of this action are relatively certain and are not expected to involve unique or unknown risks as all but one of the subject ESUs has been previously listed, because NMFS has already implemented criteria for many of the 14 limits, and the agency has maintained cooperative involvement with affected co-managers as a result of approving past limit requests. Moreover, NMFS has surveyed all of the available scientific data regarding the distribution and abundance of hatchery-origin fish, resident rainbow trout, and the interactions between these populations and co-occurring anadromous natural populations. NMFS may modify its conclusions, and thus its treatment of hatchery fish and rainbow trout in the future if additional information becomes available.
6. The proposed action would not adversely affect areas listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural, or historic resources.
7. The proposed action would not adversely modify or destroy proposed or existing designated critical habitat as defined by the ESA or designated essential fish habitat as defined by the Magnuson-Stevens Act, and would likely provide additional management tools for improving habitat conditions over time.
8. The proposed action does not threaten a violation of federal, state, or local law requirements imposed for the protection of the environment.

6.3 DETERMINATION

Based on the analysis in this EA, I conclude that the proposed action to revise and simplify certain protective regulations governing threatened Chinook, sockeye, chum, coho, and *O. mykiss* ESUs does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of section 102(2)(c) of the National Environmental Policy Act of 1969 (as amended). Therefore, an environmental impact statement is not required.

William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries
National Oceanic and Atmospheric Administration

Date

cc:

NWR3 – Donna Darm

NWR – Joe Scordino

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NWR3 – Garth Griffin

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SWR – Craig Wingert

F – Jim Lecky

APPENDIX 1

DRAFT EA COMMENTS AND RESPONSES

Summary of the Comments Received and Responses

Below are summaries and responses to the comments received regarding the draft EA of the proposed amendments to the 4(d) protective regulations for threatened salmonids. The following table lists the comments received regarding the draft EA. Copies of the comments received may be found at the end of this appendix. The numbers of specific comments are denoted in the left-hand margins of the documents, and referred to in the summary and response to the issues raised.

Table 1.1. List of the documents received in response to the draft EA of the proposed amendments to the 4(d) protective regulations for threatened salmonids.

Date	Document Description
1/12/2005	E-mail: M. Harrington (EPA), 2005, to K. Hawe (NMFS) re: "4(d) EA Comments", comments from region 10 of the Environmental Protection Agency regarding NMFS' draft Environmental assessment for the proposed amendments to the 4(d) protective regulations for threatened Pacific salmonids. 01/12/2005. 2 p.
12/2/2004	E-mail: D. Hirsh (NMFS), 2004, to D. Darm and S. Rumsey (NMFS), re: Washington Department of Transportation and King County comments on Draft 4(d) EA -- Appendix A. 12/2/2004. 1 p.
12/15/2004	Letter: A. Norton Miller (EPA), 2004, to R. Lohn (NMFS) re: NMFS' draft Environmental Assessment of the proposed amendment to the 4(d) protective regulations for threatened salmonid ESUs. 12/15/2004. 2 p.
12/15/2004	Letter: S. Steffen (Modesto Irrigation District), 2004, to Chief (NMFS) RE: comments o Modesto Irrigation District, Oakdale Irrigation District, South San Joaquin Irrigation District, Stockton East Water District, and Turlock Irrigation District on the Draft Environmental Assessment of Proposed Amendments to 4(d) Protective Regulations for Threatened Salmonid ESUs. 12/15/2004. 6 p.
12/15/2004	Letter: L. Goodman (U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Region), 2004, to Chief (NMFS) RE: review of NMFS' November 2004 draft Environmental Assessment of proposed amendments to the ESA protective regulations for West Coast threatened salmon and steelhead ESUs. 12/15/2004. 2 p.
12/15/2004	Letter: E. Shepard (U.S. Dept. of Interior, Bureau of Land Management), 2004, to D. Darm (NMFS) re: BLM's review of NMFS' draft Environmental Assessment for NMFS' June 2004 proposed

	amendments to the ESA protective regulations for West coast threatened salmon and steelhead ESUs. 12/15/2004. 3 p.
12/15/2004	Letter: B. Wright (Pacific Rivers Council), 2004, to Chief (NMFS) RE: comment on the draft Environmental Assessment for NOAA fisheries' proposed amendments to the 4(d) protective regulations for Pacific threatened salmon and steelhead ESUs. 12/15/2004. 4 p.

Issue 1: The Environmental Protection Agency (EPA) commented (comment #1) that the draft EA did not discuss the severity of the potential environmental impacts of the alternatives addressed. The EPA recommended that this Final EA address the severity of the potential environmental impacts to resources.

Response: In the draft EA NMFS presented a concise evaluation of the alternatives and their respective potential environmental impacts. In this final EA, the Finding of No Significant Impact (section 6 in the preceding document) summarizes NMFS' analysis of the severity or degree of environmental impact to resources.

Issue 2: Region 10 of the EPA recommended (comment #2) that NMFS include provisions to ensure that state fish and wildlife agencies continue to regulate rainbow trout fisheries to protect listed steelhead.

Response: There is very little information available regarding the status of West Coast rainbow trout stocks where they co-occur with anadromous steelhead (Kostow 2003, NMFS 2003b). Consequently, there is considerable scientific uncertainty as to how the resident form affects extinction risk through its influence on ESU productivity, spatial structure, and diversity. Despite the reduced risk to abundance for certain *O. mykiss* ESUs due to numerically abundant residents, the collective contribution of the resident life-history form to the viability of an ESU in-total is unknown (NMFS 2004a), as is the value of extending take prohibitions to resident fish. Where resident and anadromous *O. mykiss* co-occur, it is difficult to distinguish the two life-history forms throughout much of their life cycle. NMFS does not have sufficient information to suggest that extending the ESA take prohibitions to resident *O. mykiss* would confer any additional conservation benefits to listed *O. mykiss* ESUs.

In the EA NMFS notes that because juvenile steelhead are difficult to distinguish from rainbow trout, the ESA currently requires state fish and wildlife agencies to regulate rainbow trout fisheries to protect listed steelhead. Since the ESA listings of steelhead in 1997-2000, State and tribal managers have adopted wild salmonid policies that have eliminated releases of hatchery-produced rainbow trout in important wild steelhead waters, and manage rainbow trout fisheries in support of steelhead conservation and recovery. The vast majority of hatchery rainbow recreational fisheries are restricted to isolated ponds and lakes. In those instances where rainbow trout fisheries occur in steelhead waters, they employ minimum size-limits protective of

juvenile *O. mykiss*, and are managed temporally to avoid adverse impacts to migrating steelhead. It is not necessary to include additional provisions to ensure that state agencies continue to regulate rainbow trout fisheries to protect steelhead. As noted above, the ESA requires that the states manage their fisheries consistent with the conservation of listed ESUs.

Issue 3: Region 10 of the EPA felt (comment #3) that the EA should provide more information on the exposure to, and impacts of, pollutants and toxic substances on salmonids.

Response: This issue is outside the scope of the proposed action and alternatives considered. Although salmonids can also be adversely affected by a variety of toxic pollutants, the alternatives evaluated for the application of 4(d) protective regulations will have no impact with respect to the effects of toxic pollutants on listed salmonids or the environment.

Issue 4: The Forest Service (USFS) and the Bureau of Land Management (BLM) commented (comments # 4 and #5) that the 4(d) limits, and the scope of the EA, should include Federal land management actions where appropriate in the categories of actions for which the prohibition of take may not apply. The USFS and BLM believe that exempting certain Federal activities through 4(d) authorization would enable more expedient and cost effective compliance to their section 7 obligations, while streamlining restoration activities designed to improve salmonid habitats.

Response: It is not possible to adopt a 4(d) limit that would cover Federal activities implemented under USFS and BLM LRMPs, unless the limit involved review and approval of specific activities (similar to other current 4(d) limits). The LRMPs address general classes of USFS and BLM actions that are conducted under the authority of the respective agency, and lack the specificity required for a 4(d) limit. For a 4(d) limit to cover future unidentified actions, without subsequent review and approval, the limit would have to specify narrowly defined activities to be conducted according to strict guidelines within stringent project management conditions. Adopting limits that require subsequent review and approval would not provide any relief to Federal agencies and would, to the contrary, increase regulatory review.

As the BLM and USFS acknowledged, the 4(d) limits on the take prohibitions do not relieve Federal agencies of their duty under section 7 of the ESA to consult with NMFS if actions they fund, authorize, or carry out may affect listed species. The various 4(d) limits may be useful to Federal agencies as guidance in developing and implementing their conservation programs. To the extent that Federal actions subject to section 7 consultation are consistent with the terms of a 4(d) limit, the consultation process may be greatly simplified. However, granting the BLM's and USFS' request to explicitly include certain Federal activities in several 4(d) limits would not diminish their section 7 obligations.

Issue 5: In a comment relayed verbally to NMFS staff (comment #6), the Washington Department of Transportation and King County noted that the summary of Limit 10 in Appendix A of the draft EA omitted description of programs authorized under limit 10(ii) and limit 10(iii).

Response: Limit 10(i) exempts certain routine road maintenance programs (RRMPs) that are compliant with or substantially similar to Oregon Department of Transportation's (ODOT) Transportation Water Quality and Habitat Guide. The commenters correctly note that the summary of limit 10 in Appendix A in the draft EA omitted exemptions for RRMPs under 10(ii) and 10(iii). Limit 10(ii) exempts RRMPs that are determined to contribute to the attainment and maintenance of properly functioning conditions, or the sustained habitat-forming processes necessary for long-term viable salmonid populations. Limit 10(iii) allows for amendments to a previously authorized RRMP provided NMFS reviews and approves of the changes consistent with the conditions described in the limit. WSDOT and King County have been active in implementing programs under Limit 10(ii) and 10 (iii) (such as the Washington RRMP) that are consistent with achieving and maintaining properly functioning conditions for listed ESUs. NMFS has amended the summary of limit 10 in Appendix A to remedy the issue raised.

Issue 6: The Pacific Rivers Council and Modesto Irrigation District commented (comments #7 and #10) that NMFS inappropriately relies upon the *Alsea* decision to support the proposed amendments to the 4(d) protective regulations. Pacific Rivers Council expressed concern that the proposed amendments would result in a reduction in ESA protections for wild salmonids.

Response: NMFS does not rely on the *Alsea* ruling in supporting changes to the 4(d) protective regulations. The *Alsea* ruling found that the ESA does not allow us to list a subset of a DPS or ESU, and that all components of an ESU (natural populations, hatchery stocks, and, under the Court's reasoning, resident populations) must be included in a listing if it is determined that an ESU warrants listing as threatened or endangered. The *Alsea* ruling does not require any particular approach to promulgating protective regulations for threatened salmonids.

The flexibility afforded NMFS under section 4(d), and the best available scientific information support the proposed amendments to the 4(d) protective regulations. Section 4(d) of the ESA states that "[w]henever a species is listed as a threatened species ..., the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of such species" [emphasis added]. "The Secretary may ... prohibit with respect to any threatened species any act prohibited under section 9(a)(1) ... with respect to endangered species." This gives the Secretary flexibility under section 4(d) to tailor protective regulations that appropriately reflect the biological condition of each threatened ESU. NMFS believes that the proposed section 4(d) protections are necessary and advisable for conservation of threatened ESUs.

NMFS does not agree that the proposed 4(d) protective regulations will result in the reduction of protections afforded threatened ESUs. As described in the EA (subsections 4.2 and 4.3, above) the proposed action alternative would maintain and improve the existing level of protections for threatened ESU, while the no action alternative would result in a reduction in

protections. The no action alternative would result in the lack of take prohibitions for two ESUs (the Upper Columbia River *O. mykiss* ESU previously listed as endangered, and the Lower Columbia River coho ESU newly being listed as threatened). Although the remaining ESUs currently listed as threatened would continue to be covered under the existing 4(d) protective regulations, the take of all listed hatchery fish and resident *O. mykiss* newly being listed would be prohibited. NMFS believes that excluding threatened hatchery fish marked by a clipped adipose fin from section 4(d) protections is necessary and advisable for conservation. In many cases hatchery fish are produced for harvest and not for conservation, so it is not necessary to conserve these hatchery fish. In most cases it is necessary for the conservation of at-risk ESUs to manage the proportion of hatchery-origin fish spawning naturally. Hatchery production that is surplus to conservation may create population pressures that cannot be relieved except through harvest of the surplus. As noted above in the response to Issue 2, NMFS does not have sufficient information to suggest that extending the ESA take prohibitions to resident *O. mykiss* would confer any additional conservation benefits to listed *O. mykiss* ESUs.

Issue 7: The Pacific Rivers Council commented (comment #8) that if hatchery fish do not require take protections, then they do not contribute to the conservation of threatened wild salmonids, and thus should not have been included as part of the ESUs.

Response: The question of whether hatchery fish are properly included in the listed ESUs is addressed in response to comments in the final listing determinations (see Issue 3, in the final listings *Federal Register* notice). With respect to prohibiting the take of listed hatchery fish, the comment oversimplifies the proposed approach. The proposed change to the application of the take prohibitions is to apply section 4(d) protections to natural and hatchery fish with an intact adipose fin, but not to listed hatchery fish that have had their adipose fin removed prior to release into the wild. NMFS believes this approach provides needed flexibility to appropriately manage artificial propagation and direct take of threatened salmon and *O. mykiss* for the conservation and recovery of these ESUs. Not all hatchery stocks considered to be part of listed ESUs are of equal value for use in conservation and recovery. For example, certain ESU hatchery stocks may comprise a substantial portion of the genetic diversity remaining in a threatened ESU, and thus are essential assets for ongoing and future recovery efforts. If released with adipose fins intact, hatchery fish in these stocks would be afforded protections under the amended 4(d) protective regulations. NMFS, however, may need to approve the take of listed hatchery stocks to manage the number of hatchery fish allowed to spawn naturally to limit potential adverse effects to spawning natural-origin fish. Other hatchery stocks, although considered to be part of a threatened ESU, may be of limited or uncertain conservation value at the present time. Artificial propagation programs producing within-ESU hatchery populations could release adipose-fin-clipped fish, such that protections under 4(d) would not apply, and these hatchery fish could fulfill other purposes (e.g., fulfilling Federal trust and tribal treaty

obligations) while preserving all future recovery options. If it is later determined through ongoing recovery planning efforts that these hatchery stocks are essential for recovery, the relevant hatchery program(s) could discontinue removal of the adipose fin from all or a sufficient portion of its production as necessary to meet recovery needs.

Issue 8: The Pacific Rivers Council commented (comment #9) that the draft EA failed to provide substantive analysis that allowing take of hatchery and resident fish would not impede the conservation of listed ESUs.

Response: The comment oversimplifies the proposed amendments to the 4(d) protective regulations, incorrectly inferring that the take of hatchery-produced fish will be universally allowed, and that any adverse impacts of take on the conservation of listed ESUs will not be considered. As noted in the response to the above issue, certain ESU hatchery stocks may represent essential assets for ongoing and future recovery efforts, and as such would be afforded protections under the amended 4(d) protective regulations provided they are released with adipose fins intact. Although the take prohibitions will not apply to hatchery fish with a clipped adipose fin, any such take must be conducted consistent with an approved fishery management plan that fully considers impacts to the conservation and recovery of the affected ESU(s). As noted above in the response to Issue 2, NMFS does not have sufficient information to suggest that extending the ESA take prohibitions to resident *O. mykiss* would confer any additional conservation benefits to listed *O. mykiss* ESUs.

Issue 9: The Modesto Irrigation District commented (comment #11) that by not applying the take prohibitions to certain adipose-fin-clipped hatchery stocks, NMFS inappropriately concludes that these hatchery fish are surplus to the conservation and recovery needs of an ESU even though they may spawn naturally and produce viable offspring.

Response: NMFS feels that the proposed amendment to the 4(d) protective regulations provides needed flexibility to ensure that hatchery programs are managed consistent with the conservation and recovery needs of listed ESUs. In instances where listed hatchery fish are intended to spawn naturally and supplement the naturally spawned population, it may be necessary to allow take of these hatchery fish to: limit potential adverse ecological effects on spawning natural-origin fish; and limit the effects of artificial selection in the hatchery environment and maintain locally adapted traits in the naturally-spawned population. NMFS does not agree that allowing the take of adipose-fin-clipped hatchery fish intended for supplementation is contrary to the conservation and recovery needs of an ESU. NMFS feels that harvest and other management methods are essential tools for maximizing the potential benefits and minimizing the potential risks of artificial propagation.

Issue 10: The Modesto Irrigation District commented (comment #12) that the proposed amendment to the 4(d) protective regulations inappropriately denies the take prohibitions to listed resident *O. mykiss* populations even though the available evidence indicates that resident

rainbow trout may be the progeny of steelhead, can produce anadromous offspring, or may subsequently exhibit anadromy at some later point in their life time.

Response: As noted above in the response to Issue 2, NMFS does not have sufficient information to suggest that extending the ESA take prohibitions to resident *O. mykiss* would confer any additional conservation benefits to listed *O. mykiss* ESUs. There is insufficient information to evaluate trends in the abundance and productivity of resident fish, or determine the extent to which resident populations in these ESUs are dependent upon demographic infusions from anadromous fish. For these reasons, NMFS has concluded that despite the reduced risk to abundance for certain *O. mykiss* ESUs due to qualitatively abundant resident fish, the collective contribution of the resident life-history form to the persistence of a below-barrier *O. mykiss* ESU is unknown and may not substantially reduce the overall extinction risks to the ESU in-total. NMFS concludes that there is insufficient information to support that extending the take prohibitions to resident rainbow trout populations is necessary and advisable for the conservation of *O. mykiss* ESUs.

Issue 11: The Modesto Irrigation District noted that out-of-ESU hatchery fish can spawn naturally and produce unmarked progeny. The commenter observed that the naturally spawned progeny of out-of-ESU hatchery fish may pose genetic risks to the conservation of listed ESUs, however, since they are indistinguishable from listed fish they are afforded ESA protections. The commenter argued that by not requiring hatchery operators to use only qualifying ESU broodstock, NMFS is endangering the genetic diversity of listed ESUs.

Response: Of the 21 ESUs listed as threatened in the final listing determinations, nine have associated out-of-ESU hatchery programs: the Lower Columbia River Chinook, Puget Sound Chinook, Snake River spring/summer-run Chinook, California Central Valley *O. mykiss*, Northern California *O. mykiss*, Upper Willamette River *O. mykiss*, Lower Columbia River *O. mykiss*, Middle Columbia River *O. mykiss*, and Snake River Basin *O. mykiss* ESUs. NMFS recognizes that in some circumstances it may not be feasible to visibly distinguish the naturally spawned progeny of out-of-ESU hatchery fish from the listed natural population(s). Unfortunately, it is not possible to allow for the take of the naturally spawned progeny of out-of-ESU hatchery fish and still provide protective regulations with clearly enforceable distinctions. The commenter is correct that the “default” is for the applicable ESA protections to apply in instances where unlisted out-of-ESU fish cannot be distinguished from listed fish. However, in some instances the progeny of out-of-ESU hatchery fish may be distinguished by distinct patterns of habitat use, spawning location, run timing, or other means. In these instances the protections of the ESA do not apply, or actions may be authorized based on a consideration of any associated take of listed fish pursuant to sections 4(d), 7(a)(2), 10(a)(1)(A) or 10(a)(1)(B) of the ESA, as appropriate. NMFS staff regularly provide technical assistance concerning whether a given action may affect a listed species.

Hatchery programs producing out-of-ESU fish may result in an incidental take of a listed ESU, and can legally occur only after fulfilling the requirements of sections 7(a)(2) (for Federal actions), or 4(d) or 10(a)(1)(B) (for non-Federal actions) of the ESA. NMFS intends to use the authority of the ESA to minimize the impacts of out-of-ESU hatchery fish, and their progeny, on the conservation and recovery of listed ESUs.

Issue 12: The Modesto Irrigation District asserted (comment #14) that the EA is inadequate, and that a full Environmental Impact Statement (EIS) is required to satisfy the requirements of NEPA. The commenter further argues that the EA fails to consider a full range of alternatives, such as an alternative that would reduce the scale of hatchery production to manage the potential risks of hatchery population to the genetic and ecological integrity of naturally spawned populations.

Response: NMFS has adequately satisfied the requirements of NEPA. An EIS is prepared when there is a potential for a significant impact to one or more resources based on implementation of the proposed action. NMFS disagrees that an EIS is warranted for this review because NMFS has made a finding of no significant impact for the proposed action. In this case, preparation of an EIS would not result in additional information or more robust analyses of potential effects because the EA review employed the best available science and valid and reliable commercial data for resources potentially affected by the proposed action. Further, the EA acknowledges that data and consequence uncertainties exist because of insufficient information available for analyses. Preparing an EIS would not resolve existing uncertainties concerning the role of artificial propagation and resident populations in the conservation and recovery of listed ESUs because additional information from that used in the EA does not exist.

Preparation of an EIS also involves the benefit of public input to the analyses. NMFS provided the draft EA for a lengthy public comment period, and it is unlikely that an EIS process would result in more or new public information that would be helpful for the development of the NEPA review or in scoping the potential areas of impact.

The draft EA summarized three additional alternatives that were considered but not analyzed (section 2.8), because they failed to meet the purpose and need defined in section 1. These additional alternative were: (1) to remove all take prohibitions for threatened ESUs; (2) to extend a blanket take prohibition to all threatened ESUs without any limits exempting specific categories of actions; and (3) extending the 4(d) protective regulations only to the two ESU being newly listed as threatened (the Upper Columbia River *O. mykiss* and Lower Columbia River coho ESUs). The specific suggestion made by the commenter that the scale of hatchery production be reduced is outside the scope of the subject action: whether and to what extent the Secretary should extend the section 9(a)(1) take prohibitions to threatened ESUs. West coast salmon and *O. mykiss* are threatened by a wide range of human activities including land

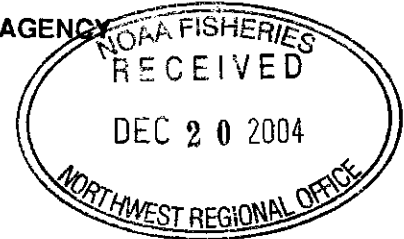
management activities that degrade their habitat (such as silviculture, agriculture, grazing, and development), water withdrawals, hydropower development, harvest and hatchery practices. While a 4(d) rule could arguably specifically regulate any of these activities, NMFS has not in the past adopted such rules, NMFS has not in the past adopted such rules because the potential scope of activities would be too vast and because a blanket prohibition on any particular activity would go beyond what is “necessary and advisable” for conservation. Many of the activities that can harm salmon and *O. mykiss* can also be conducted in a way that is consistent with conservation. Thus NMFS has chosen to extend the section 9(a)(1) take prohibitions to the extent necessary and advisable. Although the commenter’s suggestion is outside the scope of the subject action, NMFS may affect changes to the operation of specific hatchery programs, and any other activities that threaten listed salmon and *O. mykiss* under sections 7(a)(2), 10(a)(1)(A), 10(a)(1)(B), and 4(d).

COPIES OF THE COMMENTS RECEIVED (see the index of comments in Table 1.1, above) are included in the following pages (Appendix 1-10 through Appendix 1-29):



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 15 2004



HAW
PRD

ASSISTANT ADMINISTRATOR
FOR ENFORCEMENT AND
COMPLIANCE ASSURANCE

National Marine Fisheries Service
Northwest Regional Office
Attention: Robert D. Lohn
Regional Administrator
Protected Resources Division
525 NE Oregon Street, Suite 500
Portland, OR 97232

Dear Mr. Lohn:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA) has reviewed the National Marine Fisheries Service's (NMFS) Draft Environmental Assessment of the Proposed Amendment to the 4(d) Protective Regulations for Threatened Salmonid Evolutionary Significant Units (ESUs).


According to the Draft EA, NMFS proposes to revise and simplify exiting 4(d) protective regulations for threatened salmon and *Onorhynchus mykiss* ESUs. NMFS is proposing to revise the protective regulations so that all threatened ESUs are subject to the same limits. Additionally, NMFS proposes to revise the current protective regulations so that the section 9 take prohibitions do not apply to adipose-fin-clipped hatchery fish and resident *Onorhynchus mykiss*. In the EA, NMFS has determined that this latter amendment will minimize the regulatory burden of managing threatened listings, while retaining the necessary and advisable protections to provide for the conservation of threatened salmon and *Onorhynchus mykiss* ESUs.

1 | The Draft EA provides a good overview of the regulatory history and issues to be analyzed. Likewise, the analysis itself of the potential environmental impacts of the alternatives to potentially affected environmental resources is balanced and concise. However, the Draft EA does not discuss the severity of the potential environmental impacts. Moreover, there was no Draft Finding of No Significant Impact that may have contained an analysis of the severity or degree of environmental impact to resources. Accordingly, EPA recommends that the Final EA address the severity of the potential environmental impacts to resources.



We appreciate the opportunity to review this DEA. We also look forward to reviewing the Final EA related to this project. The staff contact for this review is Matthew Harrington and he can be reached at (202) 564-7148.

Sincerely,


Anne Norton Miller
Director
Office of Federal Activities

cc: Steve Kokkinakis, NOAA Office of Strategic Planning
John Hansel, NMFS Office of Sustainable Fisheries
David Keys, NMFS Regional Administrator Office
Scott Rumsey, NMFS Northwest Regional Office

From: Harrington.Matt@epamail.epa.gov

1/12/2005 1:27 PM

Subject: Re: 4(d) EA Comments

To: Kathe Hawe <kathe.hawe@noaa.gov>

CC: Scott Rumsey <Scott.Rumsey@noaa.gov>

Hi Kathe and Scott,

Our region 10 office also has provided a few comments (see below). I will get the revised letter out to you as soon as I can. Here are the comments in the meanwhile. I will also change to add Kathe on the cc list and take David off. Sorry about that!

A couple of specific comments.

#2 Section 2.6 (page 2-5) states that "the ESA currently requires state fish and wildlife agencies to regulate rainbow trout fisheries to protect listed steelhead. NMFS expects that state regulations would remain in place." It would be advantageous to have some provisions in place per chance that the state regulations do not remain in place.

Section 3.6.2.4 Pollutants

#3 While this Affected Environment section provides some basic background on the effects of toxics on salmonids, it is lacking information. The EA should discuss the potential environmental impacts of major sources of pollutants (e.g., CSO) affecting salmonids and the toxic effects on salmonid reproduction. With the latest reports indicating that resident Puget Sound chinook salmon have PCB body burdens 10 times higher than any migratory or pen raised salmon, and knowing that toxics such as PCBs can have significant impacts on reproduction, NOAA-Fisheries should provide more information on toxic impacts on salmonids. Thus, this section should discuss what is known about the sources of environmental impact, exposures and impacts of toxics on salmonids.

Kathe Hawe
<kathe.hawe@noaa.gov>

01/10/2005
07:23 PM

Matt Harrington/DC/USEPA/US@EPA

Scott Rumsey
<Scott.Rumsey@noaa.gov>

4(d) EA Comments

To

cc

Subject

Hi Matt:

Just an FYI that we have not received the EPA's comments on the NMFS 4(d) EA. Im not sure where you sent them (I think you said the Portland office), but they never arrived in either Portland or Seattle. Can you please send them to my attention here in Seattle ASAP? Thanks, and Happy New Year.

Appendix 1-12



United States
Department of
Agriculture

Forest
Service

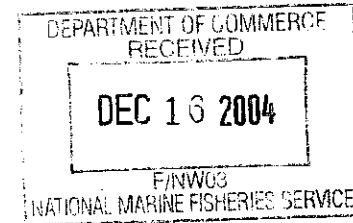
Pacific
Northwest
Region

333 SW First Avenue (97204)
PO Box 3623
Portland, OR 97208-3623
503-808-2468

File Code: 2670

Date: December 15, 2004

Branch Chief
Protected Resources Division
National Marine Fisheries Service
525 NE Oregon St.
Portland, OR 97232-2737



Dear Sir:

The Pacific Northwest (PNW) Region of the USDA Forest Service has reviewed the National Marine Fisheries Service (NMFS) draft Environmental Assessment (EA) for NMFS' November 2004, proposed amendments to the Endangered Species Act (ESA) protective regulations (69 FR 65582) for West Coast threatened salmon and steelhead Evolutionarily Significant Units (ESUs). The geographic location of these salmon and steelhead ESUs include lands managed by the Forest Service on 16 National Forests in Oregon and Washington.

Our understanding of section 4(d) of the ESA is that it does not prohibit NMFS from issuing a 4(d) rule that would include federal land management agency actions. In fact, the current protective regulations for West Coast salmon and steelhead (65 FR 42422; July 10, 2000), identify section 7 consultation efficiencies and provide clarification on use of limits for federal activities. **"The limits on the take prohibitions do not relieve Federal agencies of their duty under section 7 of the ESA to consult with NMFS if actions they fund, authorize, or carry out may affect listed species. To the extent that actions subject to section 7 consultation are consistent with a circumstance for which NMFS has limited the take prohibitions, a letter of concurrence from NMFS will greatly simplify the consultation process, provided the program is still consistent with the terms of the limit."** Descriptions of the process federal agencies are to follow should be included either in the EA, or an amendment to the NMFS publication, **"A Citizen's Guide to the 4(d) Rule"**, so that actions implemented under the authorities of the limits can be clearly examined and tracked.

#4 ↓ The EA addresses 14 categories of actions for which prohibition of take would not apply (i.e., limits or exceptions to the protective regulations). The categories do not appear to apply to federal land management agencies, but does include states, counties, private individuals, and other government entities. Although the current protective regulations imply the use of limits or exceptions for federal activities, those limits need to be clearly articulated. Activities on federal lands that are consistent with regional land use and aquatic conservation strategies are equally applicable to limits or exceptions developed for the State (eg forest management activities on State or private lands within the State of Washington). We believe the scope of the EA should include federal land management agency activities where appropriate in the categories of actions for which prohibition of take would not apply.



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#4 ↑ We especially recommend including federal land management habitat restoration activities in these limits to the 4(d) rule. An exemption for certain federal activities would enable more expedient and cost effective implementation of restoration activities designed to enhance riparian and stream habitat conditions for salmonids in a manner that meets the legal requirements of the ESA. Such restoration activities should help to accelerate recovery of these listed ESUs and other federally listed species that occupy the same habitats, and allow us to focus more resources and attention on implementation and monitoring of our restoration, conservation, and recovery programs.

In pursuing the proposed 4(d) rules for the West Coast enormous fish ESUs, we propose that you work with the Forest Service (and other involved federal agencies, such as the Bureau of Land Management, Natural Resources Conservation Service, etc.) to establish the qualifying criteria required for exemption as well as the type and intensity of monitoring required. Certain criteria for minimizing adverse impacts to salmon and steelhead would need to be met in order for restoration activities to qualify for the exemption from prohibited take, and a minimal annual level of reporting would be required to monitor restoration efforts and accomplishments.

Thank you for the opportunity to review and comment on the draft EA for the 4(d) rule. If you have any questions regarding these comments, please contact Scott Woltering, Regional Threatened, Endangered and Sensitive Species aquatic biologist, at (503) 808-2669.

Sincerely,


LINDA GOODMAN
Regional Forester

cc: Scott C Woltering



United States Department of the Interior

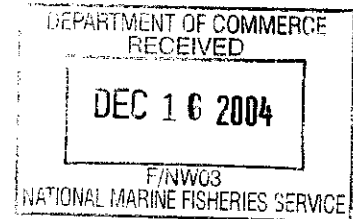
BUREAU OF LAND MANAGEMENT

Washington, D.C. 20240

<http://www.blm.gov>

December 15, 2004

Ms. Donna Darm
Chief, Protect Resources Division
National Marine Fisheries Service
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2737



RE: Draft 4(d) EA comments

Dear Ms. Darm:

#5 The Bureau of Land Management has reviewed the National Marine Fisheries Service (NMFS) draft Environmental Assessment (EA) for NMFS' June 2004 proposed amendments to the Endangered Species Act (ESA) protective regulations for West coast threatened salmon and steelhead (69 FR 65582). Our review focuses on three of the fourteen limits (exceptions) currently proposed for non-federal lands, and clarification on use of limits for Federal actions as provided in the July 10, 2000, Federal Register Final Rule (65 FR 42422). Based on our review of the draft EA, we request NMFS amend those three limits to include activities on federal lands that implement regional land use and aquatic conservation strategies, and clarify the process by which consultation will be completed for actions consistent with the terms of the limits.

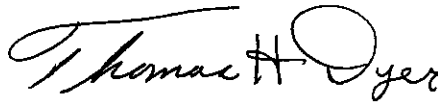
Specifically, we believe the type of conservation objectives acknowledged by the Northwest Forest Plan (NWFP) within the States of Washington, Oregon, and Northern California exceed the conservation standards and processes identified for limits (8) State, local, and private habitat restoration activities; (10) routine road maintenance activities; and (13) forest management activities on State and private lands within the State of Washington; and activities undertaken consistent with approved tribal resource management plans. If we are to apply these limits to Federal lands, as authorized in the July 10, 2000, final ruling, clarification on the level of conservation effort is needed as well as a description of the process for completing consultation under Section 7(a)(2). As explained below, the conservation objectives of the NWFP and the Aquatic Conservation Strategy (ACS) are more rigorous than those identified for application on State, tribal and private lands. We suggest NMFS include an analysis of the conservation benefits of the NWFP and ACS in the EA if Federal actions are to be subject to the limits.

Including these limits of incidental take onto Federal lands will not eliminate the need to consult with NMFS on Federal actions that "May Affect" ESA-listed species. However, it may create process efficiencies by minimizing or eliminating the need to develop and implement reasonable and prudent measures, along with mandatory terms and conditions for actions determined to result in incidental take. These efficiencies were apparently

mirrors the goals and objectives of the ACS. The ACS, however, imposes more rigorous requirements. For example, riparian reserves or stream buffers are wider, harvest is not allowed in these areas unless supported by findings in a watershed analysis and can only occur if it is necessary to meet the objectives of the ACS, and road construction is prohibited along and across streams unless supported by watershed analysis. A side-by-side comparison of guidance in the FFR and *Citizen's Guide* with the NWFP on these three limits results in similar examples.

Thank you for the opportunity to comment on the draft EA. If you have any questions regarding our request and comments, please contact E. Dwight Fielder, Group Manager, Fish, Wildlife and Botany at (202) 452-7764.

Sincerely,

A handwritten signature in cursive script, reading "Thomas H. Oyer". The signature is written in dark ink and is positioned above the typed name and title.

for Ed Shepard
Assistant Director,
Renewable Resources and Planning

12/2/2004

Thu 12:24 PM

From: David Hirsh <david.hirsh@noaa.gov>

Subject: Draft 4d EA--Appendix A

To: Donna Darm <Donna.Darm@noaa.gov>, Scott Rumsey <Scott.Rumsey@noaa.gov>

CC: Kathe Hawe <Kathe.Hawe@noaa.gov>

#6 | Donna and Scott--I spoke to Kathe this morning about the Appendix A summary of Limit 10. Our friends at WSDOT and King County were disappointed that the summary mentions the ODOT subsection of Limit 10, but omits programs prepared under 10ii and 10iii, including the beloved Washington RRMP (of which they remain very proud). Rather than have them make public comment on this smallish point, I asked Kathe if we could mention the RRMP in the final iteration of Appendix A. I know you guys are probably girding-up on Critical Habitat rulemaking and my issue is a relatively small one, so thanks for your attention to it!

David



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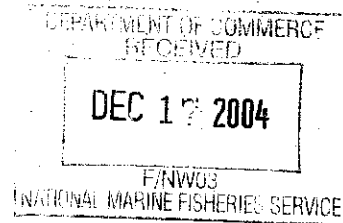
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December 15, 2004



By Email, Fax and First-Class Mail

Chief

NMFS

Protected Resources Division

525 NE Oregon Street, Suite 500

Portland, OR 97232-2737

Fax (503) 230-5435

E-mail: salmon.draft4dEA@nwr.noaa.gov

Re: Draft 4(d) EA

Dear Chief:

Thank you for the opportunity to comment on the draft Environmental Assessment (EA) for NOAA Fisheries' proposed amendments to the 4(d) protective regulations for Pacific threatened salmon and steelhead ESUs. We have reviewed the draft EA, and we wish to raise several concerns regarding the proposed amendments and the environmental assessment of those amendments. We object to NOAA Fisheries' continued reliance upon *Alsea Valley Alliance v. Evans*, 161 F.Supp.2d 1154 (D. Or. 2001) as a basis for making sweeping changes to its policies and rules, resulting in diminished protection for wild salmonids and improper consideration of hatchery fish in wild salmonid Endangered Species Act (ESA) listing determinations. The proposed 4(d) limit for adipose-fin-clipped hatchery fish and for resident *Oncorhynchus mykiss* represents the continuation of NOAA Fisheries' policy and regulatory changes that are unnecessary, irrational, and not based upon the best available science, and that undermine the ESA. Furthermore, NOAA Fisheries fails to provide any substantive analysis regarding its decision to exclude hatchery fish and resident *O. mykiss* from section 9(a) take prohibitions.

NOAA Fisheries is inappropriately relying upon the Alsea Valley Alliance decision as an excuse to reduce ESA protections for wild salmonids

NOAA Fisheries has characterized its proposed hatchery policy, proposed listing determinations for 27 salmonid ESUs, and proposed 4(d) rules, collectively, as a response to *Alsea Valley Alliance v. Evans*. E.g. Draft EA at 1-5, NOAA Fisheries' Response to the *Alsea Valley Alliance v. Evans* U.S. District Court Ruling at <http://www.nwr.noaa.gov/AlseaResponse/20040528/index.html>. The *Alsea Valley Alliance* decision was a single district court decision, decided upon a technicality,

↑ relating to a single ESU. Nevertheless, NOAA Fisheries has misrepresented this decision as requiring a major overhaul of its policies and regulations. NOAA Fisheries has used this decision to avoid acknowledging that it is making a political decision to severely retreat from providing necessary ESA protection for wild salmonids.

#7 In *Alsea Valley Alliance*, Judge Hogan determined that NOAA Fisheries improperly subdivided an ESU when making a listing determination. That is the sole holding of the opinion: NOAA Fisheries may not list only a portion of a distinct population segment. Nevertheless, NOAA Fisheries relies upon this case to justify a series of illogical decisions that fail to meet the purposes of the ESA and that fail to use the best available science. In reality, the *Alsea Valley Alliance* decision does not require any of the revised policies and regulations that NOAA Fisheries has proposed. First of all, NOAA Fisheries chose not to appeal the decision but instead to extend its expansive interpretation of the court's ruling to all 27 salmonid ESUs covered in its June 14, 2004, listing proposal (69 Fed. Reg. 33101). NOAA Fisheries' failure to defend needed protection indicates that the agency allowed politics to trump science.

Furthermore, the holding of *Alsea Valley Alliance* does not bind NOAA Fisheries to follow the untenable position that it has created. A more tenable solution to the *Alsea Valley Alliance* would have been to define hatchery fish and wild fish as separate distinct population segments; such a decision would have avoided the illogical proposal to list hatchery fish under the ESA but then deny them ESA protections. NOAA Fisheries has sufficient discretion under the ESA to define hatchery fish and wild fish as separate distinct population segments. NOAA Fisheries could, for example, have defined hatchery fish and wild fish as separate ESUs. If NOAA Fisheries interpreted its own ESU policy such that hatchery fish and wild fish could not be separate ESUs, then it could have revised its ESU policy. Instead, it has chosen to stubbornly hold fast to its ESU policy, and to the untenable premise that hatchery and wild fish are genetically identical. NOAA Fisheries' decision to stubbornly insist upon its ESU policy and a scientifically unsupportable premise is purely a political decision; *Alsea Valley Alliance* simply does not require that NOAA Fisheries conclude that hatchery and wild fish are genetically identical or that these fish are members of the same distinct population segments. This finding would be contrary to the letter and intent of the ESA.

The 4(d) rules allowing for take of adipose-fin-clipped hatchery fish and of resident O. mykiss are poorly conceived and based upon a scientifically untenable premise.

#8 NOAA Fisheries has approached the hatchery policy and listing determinations with the flawed premise that hatchery fish can substitute for wild fish because of their purported genetic similarity. NOAA Fisheries' steadfast reliance upon this premise has backed it into a corner, requiring NOAA Fisheries to create an illogical proposal: list hatchery fish because they allegedly need protection, but then deny them the protections of the ESA through a 4(d) limit. NOAA Fisheries' combination of listing hatchery fish but then denying them take protection is irrational and contradictory. If hatchery fish do not contribute to the conservation of threatened wild salmonids, and therefore do not require protection from take, then NOAA Fisheries did not need to list them in the first place. The combination of NOAA Fisheries regulations granting

#8 threatened status to hatchery fish and creating a limit to except them from take prohibitions is a clear example of cumbersome overregulation. These regulations are nonsensical, poorly conceived regulations created for the political purpose of allowing hatchery fish to substitute for the real solution to reversing salmon and steelhead declines: protection and recovery of wild fish and their habitat.

The NEPA analysis of the 4(d) rules allowing for take of adipose-fin-clipped hatchery fish and of resident O. mykiss is inadequate.

#9 The draft EA explains that NOAA Fisheries adopts 4(d) protective regulations that "the agency deems necessary and advisable for the conservation of species listed as 'threatened.'" EA at i. Nevertheless, the EA fails to provide any substantive analysis indicating how it reached the conclusion that allowing take of hatchery fish would not impede the conservation of listed ESUs. In fact, the EA provides only three sentences regarding the impacts of allowing take of listed hatchery fish upon ESUs. NOAA Fisheries cannot reasonably reach the conclusion that the take of fish it determined warrant listing will have no impact on the environment based upon a three sentence analysis of impacts to listed ESUs.

The proposed hatchery policy (69 Fed. Reg. 31,354 (June 3, 2004)) and the proposed 4(d) rules reach contradictory conclusions regarding the role of hatchery fish, and the EA fails to provide an adequate analysis to explain its dissonant conclusions. The proposed hatchery policy alleges that hatchery fish should be listed because they provide potential benefits to wild salmonid populations. However, as explained in the EA, NOAA Fisheries has determined that hatchery fish do not require protection from take. It follows that the agency must have determined that the protection of hatchery fish is neither necessary nor advisable to conserve listed ESUs. Analysis in the EA fails to adequately explain NOAA Fisheries' contradictory reasoning. If the contribution of hatchery fish is so minimal, then they should not be listed.

Finally, if NOAA Fisheries has determined that migratory declines of *O. mykiss* warrant listing of the ESU, where is substantive analysis showing that take of rainbow trout will not hinder conservation of *O. mykiss* ESUs?

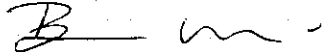
Conclusion

Pacific Rivers Council reiterates that hatchery fish should not be considered in listing determinations, except as threats. Furthermore, hatchery fish should never be used to substitute for wild fish in determining the viability of salmonid populations or assessing the need for further habitat restoration. NOAA Fisheries' improper reliance upon *Alsea Valley Alliance* and alleged genetic similarities between hatchery and wild fish has resulted in a series of misguided policy and regulatory changes, which are contrary to the best available science, and which undermine the purposes of the ESA. The proposed 4(d) rule limits for hatchery fish and resident *O. mykiss* are irrational because they only arose as a result of the illogical determination to list hatchery fish, and are unjustified because no analysis is provided regarding the impacts of taking listed hatchery fish upon the conservation of listed salmonids. These policy changes reflect political, rather than scientific, policy making. If NOAA Fisheries chooses to both list hatchery

Pacific Rivers Council's
Comments on Draft EA for Proposed 4(d) Rule
December 15, 2004
Page 4 of 4

fish and exclude them from take prohibitions, then the agency will have to do a hatchery by hatchery review to determine which hatchery fish can be taken.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Bronwen Wright', with a stylized flourish at the end.

Bronwen Wright
Conservation Associate
On Behalf of Pacific Rivers Council

FAX TRANSMISSION

MODESTO IRRIGATION DISTRICT

1231 Eleventh Street
P.O. Box 4060
Modesto, California 95352
(209) 526-7389
Fax: (209) 526-7383

Date: December 15, 2004

To: Chief, NMFS

Fax No. (503) 230-5435

Sender: Scott T. Steffen

Subject: Draft 4(d) EA

YOU SHOULD RECEIVE 7 PAGES, INCLUDING THIS COVER PAGE. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL THE LEGAL DEPARTMENT AT (209) 526-7388.

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Appendix 1-23



1231 Eleventh St.
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(209) 526-7373

December 15, 2004

Via Facsimile and U.S. Mail
(503) 230-5435

Chief, NMFS
Protected Resources Division
525 NE Oregon Street
Portland, OR 97232-2737

Re: Draft 4(d) EA

Dear Chief:

Enclosed please find original Comments of Merced Irrigation District, Modesto Irrigation District, Oakdale Irrigation District, South San Joaquin Irrigation District, Stockton East Water District, and Turlock Irrigation District on the Draft Environmental Assessment of Proposed Amendment to 4(d) Protective Regulations for Threatened Salmonid ESUs.

Should you have any questions, please do not hesitate to contact the undersigned at (209) 526-7387.

Very truly yours,

Scott T. Steffen
Assistant General Counsel

Enclosure

COMMENTS OF
MERCED IRRIGATION DISTRICT, MODESTO IRRIGATION DISTRICT,
OAKDALE IRRIGATION DISTRICT, SOUTH SAN JOAQUIN IRRIGATION
DISTRICT, STOCKTON EAST WATER DISTRICT AND TURLOCK IRRIGATION
DISTRICT ON THE DRAFT ENVIRONMENTAL ASSESSMENT
OF PROPOSED AMENDMENT TO 4(d)
PROTECTIVE REGULATIONS FOR THREATENED SALMONID ESUs

December 15, 2004

On November 15, 2004, the National Marine Fisheries Service (hereinafter, "NMFS") published its Notice of Availability of Draft Environmental Assessment (EA) and Request for Comments on its Proposed Amendment to 4(d) Protective Regulations for Threatened Salmonid ESUs, including *Onchorynchus mykiss* (i.e., steelhead and resident rainbow trout) in the California Central Valley.

NMFS has proposed for listing as threatened the California Central Valley *O. mykiss* ESU. As proposed, that ESU includes all four *O. mykiss* population components: (i) naturally spawning anadromous populations, (ii) naturally spawning resident populations, (iii) hatchery produced anadromous populations, and (iv) hatchery produced resident populations. With respect to the California Central Valley *O. mykiss* ESU, the proposed listing is intended to respond to the recent court decisions in *Modesto Irrigation District et al v. Evans et al.* (CIV-F-02-6553 OWW DLB (E.D. Cal)), in which the court held that the listing of the California Central Valley *O. mykiss* ESU was legally flawed because NMFS had determined that the ESU consisted of naturally spawning, and hatchery produced anadromous populations, but listed as threatened only naturally spawning, anadromous populations.

In light of the court's ruling, NMFS undertook a "status review" of the various west-coast salmonid ESUs, including the California Central Valley *O. mykiss* ESU. While NMFS could have reviewed its ESU determination, it did not. Instead, NMFS has proposed for listing all *O. mykiss* below the first impassable barrier in each of the streams within the California Central Valley.

Having determined that all such *O. mykiss* are "threatened," as it must under the ruling in *MID v. Evans* (see also *Alsea Valley Alliance*), NMFS now proposes an end-run around those rulings. It seeks to do indirectly, what it cannot do directly. Having been told that it must "list" all of the populations within an ESU, NMFS has done so. However, while listing all, it will now only "protect" the one favored population component it wanted to list in the first place. Not only is there no legal basis for such an end run, there is no scientific basis for it, either. And, more pertinently here, NMFS attempts to gain approval of its proposed rules without compliance with the National Environmental Protection Act.

11 NMFS' proposed revision to the 4(d) protective regulations allows take of all fish without an adipose fin. This equates to a finding that all hatchery steelhead from the Coleman NFH and the Feather River hatchery are surplus to the conservation and recovery needs of the ESU. When adult hatchery steelhead return and naturally spawn in rivers and streams, their progeny are classified as naturally spawned steelhead. (63 Fed.Reg. 13347, 13369.) Therefore, the progeny of hatchery steelhead contribute to the naturally spawned steelhead population.

Similarly, NMFS' proposed revision to the 4(d) protective regulations fails to protect resident trout. For example, NMFS states "because juvenile steelhead are difficult to distinguish from rainbow trout, the ESA currently requires state fish and wildlife agencies to regulate rainbow trout fisheries to protect the listed steelhead." (Draft Environmental Assessment, p. 2-5.) Thus, despite listing all *O. mykiss*, NMFS once again protects only naturally-spawning, anadromous populations. NMFS concedes that resident populations can produce anadromous off-spring, which would enhance the survival of the very species NMFS seeks to protect, but takes no steps to protect them. The U. S. Fish and Wildlife Service, in a letter dated September 30, 2004, wrote to the Secretary of the Federal Energy Regulatory Commission, expressing the same point.

#12 The absurdity of the Proposed Rule's failure to protect all four components of *O. mykiss* is seen by a recent finding on the Calaveras River. The carcasses of 3 stranded trout were collected in March, 2000 just below New Hogan Dam following a rapid ramp-down in flow. The fish were 15, 17, and 25 inches in length. Scale and otolith analyses were conducted to determine the life-history attributes of the fish, including the presence/absence of anadromy and maternal parentage. Scale analyses indicated that the largest fish had spent 2 years in freshwater and 1+ years in the ocean. The 17-inch fish had spent 3+ years in freshwater and some time in the estuary, but not the ocean. The smallest fish had spent 4+ years in freshwater and no time in the estuary or ocean. Microchemical analysis of strontium and calcium ratios of the fish provided evidence of maternal origin of each fish. The results indicated that the two largest fish were the progeny of anadromous females and the smallest fish was a progeny of a resident female. Thus, of a limited sample of three fish, three different life-history strategies were present (residency, anadromy, potanadromy), and although the two largest fish were the progeny of anadromous females, one of the fish had not entered the ocean. Further, all of the fish had spent a different number of years in freshwater, and both of the fish that migrated downstream did so when mature, not as young of year or yearlings.

This very limited sample serves as poignant reminder of the diverse life-history strategies found in *O. mykiss* populations, and is evidence that the anadromy life-history strategy is not an all or none proposition. Numerous examples exist outside the Calaveras River that demonstrate that California steelhead have the ability to readily convert from anadromy to complete freshwater residency, and vice-versa.

If NMFS' goal is in fact to increase naturally spawned steelhead, then NMFS should prohibit the recreational take of all *O. mykiss* that can produce naturally spawned steelhead, until the *O. mykiss* population is found to have sufficiently recovered. The

#12

failure to adopt such a rule allows NMFS to proceed in a manner that the best scientific information available says will actually contribute to the decline in populations of anadromous steelhead, contrary to law. The proposed rule allows NMFS to take a back door approach to accomplishing the same result that the *Alsea* Court found to be unlawful, stating:

...the NMFS listing decision creates the unusual circumstance of two genetically identical coho salmon swimming side-by-side in the same stream, but only one receives ESA protection while the other does not. The distinction is arbitrary. 161 F.Supp.2d 1154, 1163.

#13

While NMFS included the Coleman NFH and Feather River Hatchery steelhead hatchery programs in the ESU, NMFS excluded the California State-operated Nimbus and Mokelumne River steelhead hatchery programs because the stocks "are derived from out-of-ESU broodstock [specifically Eel River broodstock], are genetically more than moderately divergent from the ESU populations, and are not considered part of this ESU." (69 Fed.Reg., at p. 33118.) The Nimbus hatchery has an annual production goal of 430,000 steelhead yearlings. (NMFS-CDFG Final Report on Anadromous Salmonid Fish Hatcheries in California, dated December 3, 2001, at p. 32.) When these ad-clipped Nimbus and Mokelumne hatchery adult steelhead return and spawn naturally in the American, Mokelumne, and other Central Valley rivers, their progeny are classified as naturally spawned steelhead and are not ad-clipped. When those naturally spawned steelhead upmigrate, especially to other than the American and Mokelumne Rivers, they are spreading their "divergent genes" to protected ESU fish.

By failing to require the State of California to use only qualifying ESU broodstock for both Nimbus and Mokelumne Hatcheries, NMFS has made a knowing decision to endanger the genetic integrity of the California Central Valley *O. mykiss* ESU. The recent genetic study by Nielsen showed the genetic dissimilarity of the American River and other Central Valley trout, not just the Nimbus Hatchery steelhead. This pattern extends to the Putah Creek trout analyzed, which is expected as that stream is stocked with trout from Nimbus Hatchery. Trout from the Calaveras River, which enters the delta near the Mokelumne River, also were genetically allied with the American River and Nimbus Hatchery samples and genetically distant from the other Central Valley trout. Thus it appears that fish agency management programs have deliberately altered the genetics of trout in the American, Mokelumne, and Calaveras Rivers and Putah Creek by the use of non-native stocks. (See Exhibit "B," p. 10; Exhibit "C," p. 16.) However, the listing as proposed would apply to all "non-hatchery" trout in those affected streams, even though it is demonstrated that these are genetically distant from presumably "valid" populations in the Sacramento system. By continuing to allow the use of these genetically divergent broodstock, NMFS accomplishes the following: (1) it reinforces NMFS' position that hatchery fish are bad; (2) NMFS can automatically designate a significant portion of the *O. mykiss* population in the Central Valley below impassable barriers as not being part of the ESU; and (3) it helps justify NMFS focusing on the only *O. mykiss* component that NMFS apparently believes is actually worthy of protection, i.e., naturally

spawned anadromous *O. mykiss*, even though all four *O. mykiss* components comprise the ESU.

In addition to the foregoing concerns about the proposed rule, the draft Environmental Assessment ("EA") is legally inadequate.

In order for NMFS to conclude that an Environmental Impact Statement is unnecessary, and thus proceed with an EA, it must show, with "convincing reasons" why potential impacts are truly insignificant. Bald assertions that the proposed action will have insignificant impacts are insufficient under NEPA. (See, e.g. *Virgin Islands Tree Boa v. Witt* (D. Virgin Islands 1996) 918 F.Supp. 879, aff'd 82 F.3d 408.) The purpose of requiring a full EIS is to counter agency bias in favor of a project that the agency recommends, and serves to preclude serious environmental policies from being swept under the rug. (*State of Ala. ex rel. Buxley v. Corps of Engineers* (N.D.Ala. 1976) 411 F.Supp. 1261.)

#14 In this case, NMFS' is concerned about the survival of steelhead throughout the California Central Valley. Yet its proposed recovery rules would allow the take of virtually all of hatchery and resident *O. mykiss* populations, without significant study or explanation as to the effects that allowing such a take might have on NMFS' stated goal.

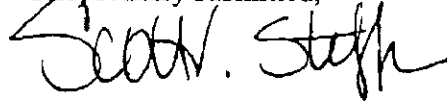
An environmental analysis under NEPA must consider a range of alternatives. See, (*Westlands Water District v. U.S. Dept. of Interior* (9th Cir. 2004) 376 F.3d 853.) Here, NMFS offers only two alternatives with regard to hatchery populations: allow the take of all members of the ESU that have been fin clipped, or allow no take at all. In summarizing its superficial and cursory discussion of this issue NMFS justifies allowing the take of all hatchery produced fish by saying "without adequate harvest, the number of fish returning to a given hatchery would likely exceed intended production levels and facility capacity, necessitating a restructuring of hatchery program goals and/or design at substantial financial cost, or listed hatchery fish may need to be destroyed." (p. 4-4.)

This "all or nothing" omits various alternatives that would be more environmentally appropriate. For example, if "harvest" of hatchery produced fish is required to avoid the effects identified in the quoted portion of the EA, above, wouldn't reduction of hatchery production be a logical alternative to either "harvest" or "destruction" of such fish (to the extent that there is any difference)? The alternative of reducing hatchery production is curious, since NMFS makes much of the potential risk of hatchery populations to the genetic integrity of naturally spawning populations. For example, NMFS expresses the concern that "long-term deleterious consequences of [hatchery supplementation] may outweigh the short-term advantage of increased population size. In recent years, various studies and scientific works have identified some potential adverse effects of artificial propagation, including behavioral differences that result in diminished fitness and survival of hatchery fish relative to naturally spawned fish." (69 Fed.Reg., at p. 33112.) Yet the Draft EA proposes as the preferred alternative that hatchery fish be "harvested"; yet not one word is said about the

environmental benefits of reducing or eliminating releases of hatchery fish into the streams where *O. mykiss* may occur.

For the reasons set forth above, we believe that the proposed rules are unlawful, and that the Draft EA is legally inadequate.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Scott T. Steffen". The signature is fluid and cursive, with the first name "Scott" and last name "Steffen" clearly distinguishable.

Scott T. Steffen

\\ODMA\PCDOCS\DOCS\103948\1

APPENDIX A
DESCRIPTION OF NMFS' 2000 4(d) LIMITS

A.1 ESA SECTION 10 ACTIVITIES

This limit recognizes that those holding permits under section 10 of the ESA (or receiving other exemptions under the ESA) are free of the take prohibitions so long as they act in accordance with the permit or applicable law. Land management activities associated with a habitat conservation plan and scientific research are examples of activities for which a section 10 permit may be issued (NMFS 2000h).

A.2 ONGOING SCIENTIFIC RESEARCH

The final 2000 4(d) rule does not restrict ongoing scientific research that affects threatened ESUs for up to 8 months (i.e., through February 2001), provided an application for a research or enhancement permit reaches the Assistant Administrator for Fisheries, NOAA, within 90 days after the rule is published. The take prohibitions will extend to these activities if the Assistant Administrator rejects an application as insufficient, if a permit is denied, or if six months have elapsed since the effective date of the final rule, whichever occurs earliest. It is in the interest of conservation not to disrupt ongoing research and conservation projects, some of which are of long duration. This limit on the take prohibitions ensures there will be no unnecessary disruption of those activities, yet provides NMFS with the ability to halt the activity if it will have unacceptable impacts on a listed ESU. This limit promulgated in 2000 has expired, and under the Proposed Action, NMFS proposes to amend it to exempt ongoing scientific research for up to 8 months (from publication of the final rule), provided an application reaches the Assistant Administrator for NOAA Fisheries within 90 days from publication of the final rule. Under the No Action alternative, this limit would remain expired, but would still appear in the rule.

A.3 RESCUE AND SALVAGE ACTIONS

This limit relieves certain agency and official personnel (or their designees) from the take prohibitions when they are acting to aid an injured or stranded fish or salvage a dead fish for scientific study. Each agency acting under this limit is to report the numbers of fish handled and their status on an annual basis. This limit on the take prohibitions conserves the listed species by preserving life or furthering an understanding of species' biology

A.4 FISHERY MANAGEMENT

State fishery management programs that are specifically implemented to minimize impacts of recreational fisheries on listed species can be developed into fishery management and evaluation plans (FMEPs). FMEPs must include measures to minimize and adequately limit take of

threatened salmonids, such as allowing only marked fish of hatchery origin to be retained, permitting open fishing seasons only where and when hatchery fish dominate, providing sanctuary areas for naturally spawning salmonids, and regulating timing of other fisheries to minimize incidental take of juvenile salmonids. The FMEPs must also include monitoring of take of threatened salmonids, annual coordination with NMFS on the fishing regulations, and providing NMFS with access to all data and reports related to the program. NMFS believes that a fishery program with these characteristics will adequately protect threatened salmonids. Once NMFS deems that a Fishery Management and Evaluation Plan (FMEP) is protective of salmonids, NMFS provides a concurrence letter, specifying any monitoring and reporting requirements. Before finding any new or amended FMEP adequate, NMFS makes the plan available for public review and comment for a period of not less than 30 days.

A.5 ARTIFICIAL PROPAGATION

Hatchery salmonids are produced for conservation and harvest purposes, including recreational and Tribal fisheries, usually as mitigation for lost spawning habitat upstream of impassable dams. For its salmonid artificial production programs to be free of take prohibitions, a state must develop a hatchery and genetic management plan (HGMP) and ensure adequate implementation of the activities described in the plan.

To ensure that broodstock collection and associated production are appropriate, NMFS has developed criteria for evaluating HGMPs. These criteria include strict limits on collecting broodstock based on whether the population functions at or above a viable population threshold. When a population is not function at or above this threshold, collection would be appropriate only if the intended goal of the collection program is strictly to enhance the propagation or survival of the listed ESU. Broodstock collection may also be appropriate in limited circumstances where the donor population is well above critical thresholds, although not yet viable, and collection will not appreciably slow the attainment of viable status.

An HGMP also must appropriately prioritize broodstock collection programs, demonstrate adequate existing fishery management programs and regulations, demonstrate adequate hatchery facilities, contain effective monitoring efforts, and include specific hatchery practice protocols aimed at conserving the genetic integrity of listed, naturally spawning salmonids.

A.6 JOINT TRIBAL/STATE PLANS DEVELOPED UNDER THE *UNITED STATES V. WASHINGTON* OR THE *UNITED STATES V. OREGON* SETTLEMENT PROCESSES

Non-Tribal salmonid management in the Puget Sound and Columbia River areas is profoundly influenced by the fishing rights of numerous Indian tribes and must be responsive to the court

proceedings that interpret and define those Tribal rights. Various orders of the *United States v. Washington* court, such as the Puget Sound Salmon Management Plan (originally approved by the court in 1977; amended in *United States v. Washington*, 626 F. Supp. 1405, 1527 (1985, W.D. Wash.)), mandate that many aspects of fishery management, including but not limited to harvest and artificial production actions, be jointly coordinated by the State of Washington and the Western Washington Treaty tribes. The State of Washington, affected tribes, other interests, and federal agencies are all working toward an integrated set of management strategies and strictures that respond to the biological, legal, and practical realities of salmon management in Puget Sound. Similar principles apply in the Columbia River basin where the States of Oregon, Washington, and Idaho and five treaty tribes work within the framework and jurisdiction of *United States v. Oregon*.

NMFS includes this limit on the take prohibitions to accommodate any resource management plan developed jointly by the States and the Tribes (joint plan) under the jurisdiction of *United States v. Washington* or *United States v. Oregon* for fishery management or artificial propagation activities. Such a plan would be developed and reviewed under the government-to-government processes outlined in the final 4(d) rule for Tribal Resource Management Plans, and analyzed using the criteria of limit 4 or 5, as appropriate. Before any joint plan receives a limit on the take prohibitions, the Secretary must determine that it will not appreciably reduce the likelihood of the listed species' survival and recovery. The Secretary shall publish a notice in the *Federal Register* of any pending determination regarding a joint plan; the notice will include a discussion of the biological analysis underlying the determination, and invite public input on the advisability and adequacy of the Secretary's pending determination.

NMFS will evaluate joint plans on a regular basis to determine if they sufficiently protect and conserve the listed fish.

A.7 SCIENTIFIC RESEARCH

In carrying out their fishery management responsibilities, state fishery management agencies conduct or permit a wide range of scientific research and monitoring studies on various fisheries, including studies on threatened salmonids. In general, NMFS concluded that these activities are vital for improving the understanding of the status and risks facing threatened salmonids, and will provide critical information for assessing the effectiveness of current and future management practices. NMFS, therefore, does not find it necessary and advisable to prohibit take of threatened salmonids for scientific research and monitoring purposes, provided that: (1) research and monitoring involving directed take of threatened salmonids is conducted or supervised by personnel attached to the appropriate state agencies; (2) the agencies provide NMFS with a list of all research and monitoring activities involving threatened salmonids

directed take planned for the coming year for NMFS' review and approval; (3) the agencies provide NMFS with the results of research and monitoring studies (including a report of the directed take resulting from these studies) directed at threatened salmonids; (4) the agencies provide NMFS annually with a list of all research and monitoring studies they permit that may incidentally take threatened salmonids during the coming year, and report the level of incidental take from the previous year's research and monitoring activities for NMFS' review and approval; and (5) research and monitoring activities involving electrofishing in any body of water known to or suspected to contain threatened salmonids should comply with "Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act" (NMFS 1998), or else requires a section 10 research permit from NMFS prior to commencing operations.

A.8 HABITAT RESTORATION LIMITS ON THE TAKE PROHIBITIONS

Certain habitat restoration activities that are likely to contribute to conserving threatened salmonids are not subject to the take prohibitions. NMFS finds that projects based on a watershed or basin scale are likely to be the most beneficial at conserving threatened salmonids. Incidental take of threatened salmonids that results from a habitat restoration activity would not be prohibited provided that state agencies have certified in writing that the activity is part of a watershed conservation plan consistent with the watershed plan guidelines that NMFS has approved, and NMFS concurs. Until a watershed conservation plan is implemented or until two years following the effective date of a final 4(d) rule (whichever comes first), incidental take resulting from six specified categories of habitat restoration activity would not be prohibited if conducted in compliance with conditions and guidance listed in the rule. If no conservation plan has been approved for a watershed after two years following the effective date of the interim rule, the general take prohibitions applicable to all other habitat-affecting activities would apply to individual restoration activities.

A.9 WATER DIVERSION SCREENING

A widely recognized cause of mortality among anadromous fish is operation of water diversions without adequate screening. While state laws and federal programs have long recognized these problems and encouraged or required adequate screening of diversion ditches, structures, and pumps, large numbers of diversions are not adequately screened and remain a threat, particularly to juvenile salmonids. NMFS limits the application of take prohibitions for any diversion screened in accordance with NMFS Juvenile Fish Screening Criteria, Northwest Region, revised February 16, 1995, with a May 9, 1996, Addendum. The limitation on take prohibitions applies

only to physical impacts on listed fish due to entrainment or similar impacts of the act of diverting.

A.10 ROUTINE ROAD MAINTENANCE

The Oregon Department of Transportation (ODOT), working with NMFS, has refined its routine road maintenance program (RRMP) to protect listed salmonids and their habitat and to minimize the impacts of road maintenance activities on receiving streams. The program governs a wide variety of maintenance activities, including surface and shoulder work; ditch, bridge, and culvert maintenance; snow and ice removal; emergency maintenance; and mowing, brush control, and other vegetation management. The program directs activity toward favorable weather conditions, increases attention to erosion control, prescribes appropriate equipment use, governs disposal of vegetation or sediment removed from roadsides or ditches, and includes other improved protections for listed salmonids, as well as improving habitat conditions. NMFS does not find it necessary and advisable to apply take prohibitions to routine road maintenance work performed consistent with the ODOT's *Maintenance of Water Quality and Habitat Guide* (Guide) (1999), because NMFS believes that doing so would not increase the level of protection provided for threatened salmonids. The Guide governs only routine maintenance activities of ODOT staff. Other activities, including new construction, major replacements, or activity for which a COE permit is required, are not covered by the routine maintenance program and, therefore, would remain subject to the take prohibitions. NMFS limits the application of take prohibitions for any incidental take of threatened salmonids that results from road maintenance activities (other than pesticide spraying and dust abatement), so long as the activity is covered by and conducted in accordance with the Guide.

Additionally, Limit 10 exempts RRMPs that are determined to contribute, as does ODOT's Guide, to the attainment and maintenance of properly functioning conditions, or the sustained habitat-forming processes necessary for long-term viable salmonid populations. This route may be most useful for states other than Oregon and counties and municipalities within those states where it would be impractical or inappropriate to adopt ODOT's Guide. Limit 10 also allows for amendments to a previously authorized RRMP provided NMFS reviews and approves of the changes consistent with the conditions described in the limit.

A.11 PORTLAND PARKS INTEGRATED PEST MANAGEMENT

The city of Portland, Oregon, Parks and Recreation has been operating and refining an integrated pest management program for several years, with a goal of reducing the extent of its use of herbicides and pesticides in park maintenance. The program's decision tree places the first priority on prevention of pests (weeds, insects, disease) through policy, planning, and avoidance

measures (design and plant selection). The second priority is on cultural and mechanical practices, trapping, and biological controls. Use of biological products is considered the third priority, and use of chemical products is to be considered the last priority. Portland, Oregon, Parks and Recreation's overall program affects only a small proportion of the land base and waterways within Portland, and it serves to minimize any impacts on listed salmonids from chemical applications associated with that specific, limited land base. NMFS believes it would contribute to conservation of listed salmonids if jurisdictions would broadly adopt a similar approach to eliminating and limiting chemical use in their parks and in other governmental functions. Portland, Oregon, Parks and Recreation has developed special policies to provide extra protections near waterways and wetlands, including a 25-foot buffer zone in which pesticide types are limited, and application is spot-applied. After careful analysis of Portland, Oregon, Parks and Recreation's integrated program for pest management, NMFS concluded that it provides adequate protection for threatened salmonids with respect to the program's limited use of the listed chemicals. NMFS does not find it necessary and advisable to apply additional federal protections in the form of take prohibitions to activities conducted under Portland, Oregon, Parks and Recreation's integrated pest management program.

A.12 MUNICIPAL, RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL DEVELOPMENT AND REDEVELOPMENT

As a general matter, significant new economic development has the potential to degrade threatened salmonid habitat and to injure or kill salmonids through a variety of impacts. Appropriate safeguards can be specifically tailored to minimize impacts on threatened salmonids to an extent that makes additional federal protections unnecessary for conservation of the listed ESU. NMFS proposes not to apply take prohibitions to planning efforts, ordinances, regulations, and programs (promulgated by city, county, and regional governments) that conserve listed salmon and steelhead by regulating or otherwise limiting activities associated with Municipal, Residential, Commercial, and Industrial development. Similarly, take prohibitions would not be applied to development consistent with an Urban Reserve Plan that Metro has evaluated and approved as in compliance with adequate guidelines. Guidelines or ordinances must ensure that urban reserve plans or developments will adequately address 12 issues, including appropriate siting, storm water discharge impacts to water quality, quantity, and hydrograph characteristics, riparian buffers, avoidance of stream crossings by roads wherever possible, protecting historic stream meander patterns and wetlands, preserving flood capacity, and erosion control. Where NMFS finds ordinances or Metro guidelines adequate, imposition of take prohibitions is not necessary or advisable.

A.13 FOREST MANAGEMENT IN WASHINGTON

In the state of Washington, discussions among the timber industry, Tribes, state and federal agencies, and interest groups led to a February 22, 1999, Forest and Fish Report (FFR) presented to Governor Locke. The report provides important improvements in forest practice regulation. If implemented by the Washington Forest Practices Board in a form at least as protective as that laid out in the FFR, these improvements will provide an enhanced level of protection to listed salmonid species. The FFR also mandates that all existing forest roads be inventoried for potential impacts on salmonids through culvert inadequacies, erosion, slope failures, and the like, and all needed improvements be completed within 15 years. Because of the substantial detrimental impacts of inadequately sited, constructed, or maintained forest roads on salmonid habitat, this feature of the overall FFR provides an important conservation benefit for listed ESUs in Washington. NMFS does not propose to apply take prohibitions to non-federal forest management activity conducted in the state of Washington that is in compliance with the FFR.

A. 14. TRIBAL RESOURCE MANAGEMENT PLANS

The United States has a unique legal relationship with Indian tribes as set forth in the Constitution of the United States, treaties, statutes, executive orders, and court decisions. The appropriate exercise of its trust obligation commits the United States to harmonize its many statutory responsibilities with the tribal exercise of tribal sovereignty, tribal rights, and tribal self-determination. With respect to the above described limits, NMFS determined it is not necessary and advisable to apply the section 9 take prohibitions to specified categories of activities that contribute to conserving listed salmonids or are governed by a program that adequately limits impacts on listed salmonids. Similarly, NMFS determined it is not necessary or advisable to prohibit activities associated with Tribal resource management activities when those activities conserve listed salmonids or adequately limit impacts on listed salmonids. Under this limit, a tribe could conduct tribal trust resource management actions that may take threatened salmonids, without the risk of violating take prohibitions adopted under ESA section 4(d). Eligibility for this limit requires a determination by the Secretary that implementing a specific Tribal Plan will not appreciably reduce the likelihood of survival and recovery of the listed species. This limit on take prohibitions would encompass a variety of types of Tribal Plans, including but not limited to, plans that address fishery harvest, artificial propagation, research, or water or land management. Tribal Plans could be developed by one tribe or jointly with other tribes. Where there exists a Federal court proceeding with continuing jurisdiction over the subject matter of a Tribal Plan, the plan may be developed and implemented within the ongoing Federal court proceeding.

APPENDIX B

LIST OF ARTIFICIAL PROPAGATION PROGRAMS INCLUDED IN EVOLUTIONARILY SIGNIFICANT UNITS (ESUS) OF WEST COAST SALMON AND *ONCORHYNCHUS MYKISS*

APPENDIX B

List of artificial propagation programs included in the final listing determinations of West Coast salmon Evolutionarily Significant Units (ESUs).and the proposed listing determinations for *O. mykiss* ESUs .

Evolutionarily Significant Unit (ESU)	Artificial Propagation Program	Run	Location (State)
Ozette Lake Sockeye ESU	Umbrella Creek Hatchery – Makah Tribe	N/A	Ozette Lake (Washington)
	Big River Hatchery – Makah Tribe	N/A	Ozette Lake (Washington)
Central Valley spring-run chinook ESU	Feather River Hatchery	Spring run	Feather River (California)
Sacramento River winter-run chinook ESU	Livingston Stone National Fish Hatchery (NFH) Conservation Program	Winter	Sacramento River (California)
	Captive Broodstock Program	Winter	Livingston Stone NFH & Univ. of Calif. Bodega Marine Laboratory (California)
California Coastal chinook ESU	Freshwater Creek/Humboldt Fish Action Council	Fall	Freshwater Creek, Humboldt Bay (California)
	Yager Creek Hatchery	Fall	Yager Creek, Van Duzen River (California)
	Redwood Creek Hatchery	Fall	Redwood Creek, South Fork Eel River (California)
	Hollow Tree Creek Hatchery	Fall	Eel River (California)
	Mattole Salmon Group Hatchery	Fall	Squaw Creek, Mattole River (California)
	Van Arsdale Fish Station	Fall	Eel River (California)
	Mad River Hatchery	Fall	Mad River (California)
Upper Willamette River chinook ESU	McKenzie River Hatchery (ODFW stock #24)	Spring	McKenzie River (Oregon)
	Marion Forks Hatchery (ODFW stock #21)	Spring	North Fork Santiam River (Oregon)
	South Santiam Hatchery (ODFW stock #23)	Spring	South Fork Santiam River (Oregon)
		Spring	Calapooia River (Oregon)
		Spring	Mollala River (Oregon)
	Willamette Hatchery (ODFW stock #22)	Spring	Middle Fork Willamette River (Oregon)
	Clackamas Hatchery (ODFW stock # 19)	Spring	Clackamas River (Oregon)
Lower Columbia River chinook ESU	Sea Resources Tule chinook Program	Fall	Chinook River (Washington)
	Big Creek Tule chinook Program	Fall	Big Creek (Oregon)
	Astoria High School (STEP) Tule chinook Program	Fall	Big Creek (Oregon)

Evolutionarily Significant Unit (ESU)	Artificial Propagation Program	Run	Location (State)
	Warrenton High School (STEP) Tule chinook Program	Fall	Big Creek (Oregon)
Lower Columbia River chinook ESU (continued)	Elochoman River Tule chinook Program	Fall	Elochoman River (Washington)
	Cowlitz Tule chinook Program	Fall	Lower Cowlitz River (Washington)
	North Fork Toutle Tule chinook Program	Fall	Cowlitz River (Washington)
	Kalama Tule chinook Program	Fall	Kalama River (Washington)
	Washougal River Tule chinook Program	Fall	Washougal River (Washington)
	Spring Creek NFH Tule chinook Program	Fall	Upper Columbia River Gorge (Washington)
	Cowlitz spring chinook Program	Spring	Upper Cowlitz River (Washington)
		Spring	Cispus River (Washington)
	Friends of Cowlitz spring chinook Program	Spring	Upper Cowlitz River (Washington)
	Kalama River spring chinook Program	Spring	Kalama River (Washington)
	Lewis River spring chinook Program	Spring	Lewis River (Washington)
	Fish First spring chinook Program	Spring	Lewis River (Washington)
	Sandy River Hatchery (ODFW stock #11)	Spring	Sandy River (Oregon)
Puget Sound chinook ESU	Kendall Creek Hatchery	Spring	North Fork Nooksack River (Washington)
	Marblemount Hatchery	Fall	Lower Skagit River (Washington)
		Spring (yearlings)	Upper Skagit River (Washington)
		Spring (sub-yearlings)	Upper Skagit River (Washington)
		Summer	Upper Skagit River (Washington)
	Harvey Creek Hatchery	Summer	North Fork Stillaguamish River (Washington)
	Whitehorse Springs Pond	Summer	North Fork Stillaguamish River (Washington)
	Wallace River Hatchery	Summer (yearlings)	Skykomish River (Washington)
		Summer (sub-yearlings)	Skykomish River (Washington)
	Tulalip Bay (Bernie Kai-Kai Gobin Hatchery/Tulalip Hatchery)	Summer	Skykomish River/Tulalip Bay (Washington)
Puget Sound chinook ESU (continued)	Issaquah Hatchery	Fall	Cedar River (Washington)

Evolutionarily Significant Unit (ESU)	Artificial Propagation Program	Run	Location (State)
	Soos Creek Hatchery	Fall	Green River (Washington)
	Icy Creek Hatchery	Fall	Green River (Washington)
	Keta Creek – Muckelshoot Tribe	Fall	Green River (Washington)
	White River Hatchery	Spring	White River (Washington)
	White Acclimation Pond	Spring	White River (Washington)
	Hupp Springs Hatchery	Spring	White River (Washington)
	Voights Creek Hatchery	Fall	Puyallup River (Washington)
	Diru Creek	Fall	Puyallup River (Washington)
	Clear Creek	Fall	Nisqually River (Washington)
	Kalama Creek	Fall	Nisqually River (Washington)
	George Adams Hatchery	Fall	Skokomish River (Washington)
	Rick's Pond Hatchery	Fall	Skokomish River (Washington)
	Hamma Hamma Hatchery	Fall	Westside Hood Canal (Washington)
	Dungeness/Hurd Creek Hatchery	Spring	Dungeness River (Washington)
	Elwha Channel Hatchery	Fall	Elwha River (Washington)
Snake River fall-run chinook ESU	Lyons Ferry Hatchery	Fall	Snake River (Idaho)
	Fall chinook Acclimation Ponds Program – Pittsburg, Captain John, and Big Canyon ponds	Fall	Snake River (Idaho)
	Nez Perce Tribal Hatchery – including North Lapwai Valley, Lakes Gulch, and Cedar Flat Satellite facilities	Fall	Snake and Clearwater Rivers (Idaho)
	Oxbow Hatchery	Fall	Snake River (Oregon, Idaho)
Snake River spring/summer-run chinook ESU	Tucannon River Hatchery (conventional)	Spring	Tucannon River (Idaho)
	Tucannon River Captive Broodstock Program.	Spring	Tucannon River (Idaho)
	Lostine River (captive/conventional)	Summer	Grande Ronde (Oregon)
	Catherine Creek (captive/conventional)	Summer	Grande Ronde (Oregon)
	Lookingglass Hatchery (reintroduction)	Summer	Grande Ronde (Oregon)
	Upper Grande Ronde (captive/conventional)	Summer	Grande Ronde (Oregon)
	Imnaha River	Spring/Summer	Imnaha River (Oregon)
	Big Sheep Creek	Spring/Summer	Imnaha River (Oregon)
	McCall Hatchery	Spring	South Fork Salmon River (Idaho)
	Johnson Creek Artificial Propagation Enhancement	Spring	East Fork South Fork Salmon River (Idaho)
	Lemhi River Captive Rearing Experiment	Spring	Lemhi River (Idaho)

Evolutionarily Significant Unit (ESU)	Artificial Propagation Program	Run	Location (State)
Snake River spring/summer-run chinook ESU (continued)	Pahsimeroi Hatchery	Summer	Salmon River (Idaho)
	East Fork Captive Rearing Experiment	Spring	East Fork Salmon River (Idaho)
	West Fork Yankee Fork Captive Rearing Experiment	Spring	Salmon River (Idaho)
	Sawtooth Hatchery	Spring	Upper Mainstem Salmon River (Idaho)
Southern Oregon/Northern California Coast Coho ESU	Cole Rivers Hatchery (ODFW stock #52)	N/A	Rogue River (Oregon)
	Trinity River Hatchery	N/A	Trinity River (California)
	Iron Gate Hatchery	N/A	Klamath River (California)
Oregon Coast Coho ESU	North Umpqua River (ODFW stock #55)	N/A	Umpqua River (Oregon)
	Cow Creek (ODFW stock #18)	N/A	Umpqua River (Oregon)
	Coos Basin (ODFW stock #37)	N/A	Coos Basin (Oregon)
	Coquille River/Bandon Hatchery (ODFW 44)	N/A	Coquille River (Oregon)
	North Fork Nehalem River (ODFW stock #32)	N/A	Nehalem River (Oregon)
Lower Columbia River Coho ESU	Grays River	Type-S	Grays River (Washington)
	Sea Resources Hatchery	Type-S	Grays River (Washington)
	Peterson Coho Project	Type-S	Grays River (Washington)
	Big Creek Hatchery (ODFW stock # 13)	N/A	Big Creek (Oregon)
	Astoria High School (STEP) Coho Program	N/A	Youngs Bay (Oregon)
	Warrenton High School (STEP) Coho Program	N/A	Youngs Bay (Oregon)
	Elochoman Type-S Coho Program	Type-S	Elochoman River (Washington)
	Elochoman Type-N Coho Program	Type-N	Elochoman River (Washington)
	Cathlamet High School FFA Type-N Coho Program	Type-N	Elochoman River (Washington)
	Cowlitz Type-N Coho Program	Type-N	Upper Cowlitz River (Washington)
	Cowlitz Type-N Coho Program	Type-N	Lower Cowlitz River (Washington)
	Cowlitz Game and Anglers Coho Program	N/A	Lower Cowlitz River (Washington)
	Friends of the Cowlitz Coho Program	N/A	Lower Cowlitz River (Washington)
	North Fork Toutle River Hatchery	Type-S	Cowlitz River (Washington)
	Kalama River Type-N Coho Program	Type-N	Kalama River (Washington)
Lower Columbia River Coho ESU (continued)	Kalama River Type-S Coho Program	Type-S	Kalama River (Washington)
	Lewis River Type-N Coho Program	Type-N	North Fork Lewis River (Washington)
	Lewis River Type-S Coho Program	Type-S	North Fork Lewis River (Washington)

Evolutionarily Significant Unit (ESU)	Artificial Propagation Program	Run	Location (State)
	Fish First Wild Coho Program	N/A	North Fork Lewis River (Washington)
	Fish First Type-N Coho Program	Type-N	North Fork Lewis River (Washington)
	Syverson Project Type-N Coho Program	Type-N	Salmon River (Washington)
	Washougal River Type-N Coho Program	Type-N	Washougal River (Washington)
	Eagle Creek NFH	n/a	Clackamas River (Oregon)
	Sandy Hatchery (ODFW stock # 11)	Late	Sandy River (Oregon)
	Bonneville/Cascade/Oxbow Complex (ODFW stock # 14)	N/A	Lower Columbia River Gorge (Oregon)
Columbia River Chum ESU	chinook River/Sea Resources Hatchery	Fall	Chinook River (Washington)
	Grays River	Fall	Grays River (Washington)
	Washougal Hatchery/Duncan Creek	Fall	Washougal River (Washington)
Hood Canal summer-run Chum ESU	Quilcene/ Quilcene NFH	Summer	Big Quilcene River (Washington)
	Hamma Hamma Fish Hatchery	Summer	Western Hood Canal (Washington)
	Lilliwaup Creek Fish Hatchery	Summer	Southwestern Hood Canal (Washington)
	Union River/Tahuya	Summer	Union River (Washington)
	Big Beef Creek Fish Hatchery	Summer	North Hood Canal (Washington)
	Salmon Creek Fish Hatchery	Summer	Discovery Bay (Washington)
	Chimacum Creek Fish Hatchery	Summer	Port Townsend Bay (Washington)
	Jimmycomelately Creek Fish Hatchery	Summer	Sequim Bay (Washington)
Southern California <i>O. mykiss</i> ESU	N/A		
Central California Coast <i>O. mykiss</i> ESU	Scott Creek/Monterey Bay Salmon and Trout Project, Kingfisher Flat Hatchery	Winter	Big Creek, Scott Creek (California)
	Don Clausen Fish Hatchery	Winter	Russian River (California)
California Central Valley <i>O. mykiss</i> ESU	Coleman NFH	Winter	Battle Creek, Sacramento River (California)
	Feather River Hatchery	Winter	Feather River (California)
Northern California <i>O. mykiss</i> ESU	Yager Creek Hatchery	Winter	Yager Creek, Van Duzen River (California)
	North Fork Gualala River Hatchery/Gualala River Steelhead Project	Winter	North Fork Gualala River (California)
Upper Willamette River <i>O. mykiss</i> ESU	N/A		
Lower Columbia River <i>O. mykiss</i> ESU	Cowlitz Trout Hatchery	Late Winter	Cispus River (Washington)
	Cowlitz Trout Hatchery	Late Winter	Upper Cowlitz River (Washington)
Lower Columbia River <i>O. mykiss</i> ESU	Cowlitz Trout Hatchery	Late Winter	Tilton River (Washington)

Evolutionarily Significant Unit (ESU)	Artificial Propagation Program	Run	Location (State)
(continued)	Cowlitz Trout Hatchery Kalama River Wild Clackamas Hatchery (ODFW stock # 122) Sandy Hatchery (ODFS stock # 11) Hood River (ODFW stock # 50)	Late Winter Winter Summer Late Winter Late Winter Winter Summer	Lower Cowlitz River (Washington) Kalama River (Washington) Kalama River (Washington) Clackamas River (Oregon) Sandy River (Oregon) Hood River (Oregon) Hood River (Oregon)
Middle Columbia River <i>O. mykiss</i> ESU	Touchet River Endemic Yakima River Kelt Reconditioning Program Umatilla River (ODFW stock # 91) Deschutes River (ODFW stock # 66)	Summer Summer Summer Summer Summer Summer	Touchet River (Washington) Satus Creek (Washington) Toppenish Creek (Washington) Naches River (Washington) Upper Yakima River (Washington) Umatilla River (Oregon) Deschutes River (Oregon)
Upper Columbia River <i>O. mykiss</i> ESU	Wenatchee River Steelhead Wells Hatchery Steelhead Winthrop NFH Steelhead (Wells Steelhead) Omak Creek Steelhead Ringold Hatchery (Wells Steelhead)	Summer Summer Summer Summer Summer Summer	Wenatchee River (Washington) Methow River (Washington) Okanogan River (Washington) Methow River (Washington) Okanogan River (Washington) Middle Columbia River (Washington)
Snake River Basin <i>O. mykiss</i> ESU	Tucannon River Dworshak NFH Lolo Creek North Fork Clearwater East Fork Salmon River	Summer Summer Summer Summer Summer	Tucannon River (Washington) South Fork Clearwater River (Idaho) Salmon River (Idaho) North Fork Clearwater River (Idaho) East Fork Salmon River (Idaho)
Snake River Basin <i>O. mykiss</i> ESU (continued)	Little Sheep Creek/Imnaha River Hatchery (ODFW stock # 29)	Summer	Imnaha River (Oregon)

N/A – Not applicable Type-S – Coho that migrate south and spawn earlie FFA – Future Farmers of America

NFH – National Fish Hatchery Type-N – Coho that migrate north and spawn later

ODFW – Oregon Department of Fish and Wildlife STEP – Salmon and Trout Enhancement Program

APPENDIX C

DESCRIPTION OF THE PROPOSED CLARIFYING CHANGES TO THE 4(D) PROTECTIVE REGULATIONS FOR THREATENED SALMONIDS

(1) NMFS proposes to apply the same set of limits to all threatened ESUs by bringing the Snake River fall-run chinook, Snake River spring/summer-run chinook, Southern Oregon/Northern California Coast coho, Central Valley spring-run chinook, California Coastal chinook, and Northern California O. mykiss ESUs under the 14 limits promulgated in 2000, as amended

NMFS believes that the clarity and consistency of the existing 4(d) regulations would be improved by including all threatened salmonid ESUs under the same set of limits, rather than maintaining separate and partially redundant sets of limits for various ESUs. As noted in subsection 2.3, Description of Limits, the limits added in 2002 are redundant to limits promulgated in 2000. Removing the nine limits promulgated in 2002 (67 FR 1116, January 9, 2002; limits §223.203 (b)(14) through (b)(22)) and aligning them under the limits promulgated in 2000 would consolidate and clarify the existing 4(d) regulations, reducing their regulatory and administrative impact, while remaining equally protective of the affected ESUs: the Central Valley spring-run chinook, California Coastal chinook, and Northern California *O. mykiss* ESUs.

NMFS also proposes to apply the limits promulgated in 2000 to the Snake River fall-run and Spring/summer-run chinook ESUs. Presently, these ESUs are afforded the section 9(a) take prohibitions and the limit exempting activities with ESA section 10 incidental take authorization (§223.203(b)(1)). However, the remaining 13 limits promulgated in 2000 do not apply (§223.203 (b)(2) through (b)(13), and §223.209). At the time of the 2000 rulemaking, NMFS stated that the 4(d) protective regulations for the two Snake River chinook ESUs provided the necessary flexibility to support research, monitoring, and conservation activities. The take limits provided by the 2000 rulemaking have proved useful in managing other threatened ESUs, including the Snake River Basin *O. mykiss* ESU, which has an overlapping geographic range with the two Snake River chinook ESUs. NMFS proposes to include these two ESUs under limits §223.203(b)(3) through (b)(13), and §223.209 to provide consistency with other threatened ESUs and to encourage programs and activities that support their conservation and recovery.

NMFS proposes removing the six limits of the 1997 interim rule for the Southern Oregon/Northern California Coast Coho ESU (62 FR 38479, July 18, 1997; §223.204) and bringing the ESU under the limits promulgated in 2000 (65 FR 42422, July 10, 2000; limits §223.203 (b)(1) through (b)(13)). The limits provided in the 1997 interim rule were the first 4(d) regulations NMFS promulgated for a threatened salmonid ESU. The limits promulgated in 2000 addressed the same types of activities addressed in the 1997 interim rule, as well as many more activities determined to be consistent with the conservation of threatened salmonid ESUs.

Including the Southern Oregon/Northern California Coast Coho ESU under the 2000 4(d) limits would result in two substantive changes in the take prohibitions afforded. The first change concerns the use of electrofishing in research and monitoring activities. In lieu of agency technical guidance on how to minimize the adverse effects of electrofishing on salmonids, the 1997 interim rule specifically prohibits the use of electrofishing (62 FR 38479, July 18, 1997; §223.204(a)(5)). In 2000, NMFS' released its *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act* (Electrofishing Guidelines; NMFS 2000a; available online at <http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/final4d/electro2000.pdf>), based on NMFS' research expertise, as well as input from fishery researchers and specialists in electrofishing technology. NMFS believes that exempting the use of electrofishing from take for research and monitoring activities for the Southern Oregon/Northern California Coast Coho ESU, consistent with the Electrofishing Guidelines, would adequately protect fish in the ESU. Additionally, this action would provide consistency by permitting similar activities for the Southern Oregon/Northern California Coast Coho ESU as those permitted for other ESUs within the same geographical range that are covered under the limits promulgated in 2000.

The second substantive change in the protective regulations for the Southern Oregon/Northern California Coast Coho ESU concerns certain scientific research activities. Under the 1997 interim 4(d) rule for this ESU (§223.204(a)(4)), take of listed species associated with certain fisheries research and monitoring activities conducted by ODFW and California Department of Fish and Game (CDFG) personnel may be allowed, pending NMFS' review and approval (62 FR 38479, July 18, 1997). This allowance does not extend beyond ODFW and CDFG, such that take for all other research (e.g., research conducted by academic researchers, contractors, and consultants) can only be afforded under section 10(a)(1). However, the limits promulgated in 2000 (specifically §223.203 (b)(7)) allow for any party conducting research under a state permit to apply for incidental and direct take under 4(d). NMFS has determined that the impact on listed species is the same whether take is afforded under section 4(d) or section 10. Requiring parties to seek coverage under section 10 increases the regulatory and administrative burden without providing additional protections or safeguards for listed fish. Accordingly, this proposed change would streamline the permitting processes for research activities, while remaining equally protective of the Southern Oregon/Northern California Coasts Coho ESU.

Certain 4(d) limits are regional in scope and are not necessarily applicable to those ESUs outside the area of coverage (for example, Limit 11 only applies in the City limits of Portland, Oregon, so it would not affect Snake River steelhead (Appendix A)). These limits are for activities in compliance with joint Tribal/state plans developed within *United States v. Washington* or *United States v. Oregon* (§223.203(b)(6)); certain park pest management activities in Portland,

Oregon (§223.203(b)(11); and forest management activities on state and private lands within the State of Washington (§223.203(b)(13)). However, NMFS would work with parties interested in pursuing such activities outside the area of coverage for these limits to ensure that any actions would be conducted consistent with the conservation of listed ESUs.

(2) NMFS proposes to amend an expired limit (§223.203(b)(2))

Limit §223.203(b)(2) exempts scientific or enhancement activities with pending applications at the time of 2000 rulemaking (65 FR 42422, July 10, 2000; 67 FR 1116, January 9, 2002). The deadline associated with this exemption has expired. The proposed removal of this expired limit would improve the clarity of the 4(d) regulations, while not impacting the protective regulations for threatened ESUs in any way.

(3) NMFS proposes to move the description of the limit for Tribal Resource Management Plans (§223.209) so that the text would appear next to the 4(d) rule in the Code of Federal Regulations, thereby improving the clarity and accessibility of the 4(d) regulations

The description of the limit exempting certain Tribal Resource Management Plans (§223.209) is separated by several sections in the Code of Federal Regulations from the descriptions of other limits (§223.203). Although this does not diminish the meaning or effectiveness of the limit in exempting certain activities under Tribal plans, its appearance in the Code of Federal Regulations as a disjunct section does not clearly convey the opportunities associated with these plans to Tribal governments. NMFS proposes to move the description of the limit for Tribal plans so that the text appears next to the other 13 4(d) limits in the Code of Federal Regulations. This reorganization would improve the clarity of the 4(d) regulations, but would not modify the limit for Tribal plans in any way.

Table C-1. No Action Alternative. Summary table illustrating the coverage of existing 4(d) protective regulations for threatened Evolutionarily Significant Units (ESUs) of salmon and *Oncorhynchus mykiss* ESUs proposed for threatened status under the No Action alternative.

[illegible]

Table C-2. Proposed Action Alternative. Summary table illustrating the coverage of 4(d) protective regulations, as proposed for amendment, for threatened Evolutionarily Significant Units (ESUs) of salmon and *Oncorhynchus mykiss* ESUs proposed for threatened status under the Proposed Action alternative.

Pacific Salmon & <i>O. mykiss</i> 4(d) Protective Regulations			Streamlining & Clarifying Alternative for Amending 4(d) Regulations [including adipose-only amendment to 223.203(a)]														
Proposed Action Alternative			Amended 223.203(a)	223.203(b) Amended 4(d) Limits (1)-(13) [65 FR 42422,07/10/2000] to apply to all threatened ESUs													
Salmonid Species		Final Listing Determinations	Sec. 9(a)(1) take prohibitions *	1	2	3	4	5	6	7	8	9	10	11	12	13	Tribal Plans (223.204)
1	Sockeye Salmon (<i>Oncorhynchus nerka</i>)	Ozette Lake Sockeye	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	Chinook Salmon (<i>O. tshawytscha</i>)	Central Valley Spring-run Chinook	X	X	X				X					X		X	X
3		California Coastal Chinook	X	X	X				X					X		X	X
4		Upper Willamette River Chinook	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5		Lower Columbia River Chinook	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6		Puget Sound Chinook	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7		Snake River Fall-run Chinook	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		Snake River Spring/Summer-run Chinook	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	Coho Salmon (<i>O. kisutch</i>)	Oregon Coast Coho	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10		Southern Oregon/Northern California Coho	X	X	X				X			X	X	X	X	X	X
11		Lower Columbia River Coho	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12	Chum Salmon (<i>O. keta</i>)	Columbia River Chum	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13		Hood Canal Summer-run Chum	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	<i>O. mykiss</i> (co-occurring resident and anadromous forms)	South-Central California Coast <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
15		Central California Coast <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16		California Central Valley <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
17		Northern California <i>O. mykiss</i>	X	X	X				X					X		X	X
18		Upper Willamette River <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19		Lower Columbia River <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20		Upper Columbia River <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
21		Snake River Basin <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22		Middle Columbia River <i>O. mykiss</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* 4(d) protective regulations amended such that the Section 9(a) take prohibitions apply to anadromous fish with an intact adipose fin only.

Color Key

Limit remains unchanged

New limit is afforded to ESU

Former Limit(s) brought under Limits 1-13